

## Turning Basin #3 Aquatic Habitat Restoration Project

### Summary of the Elliott Bay/Duwamish Restoration Program Administrative Record

#### Panel Resolutions

- 1993-02 EB/DRP shall serve as co-sponsor of record with the Muckleshoot Indian Tribe as sponsor for a Shoreline Improvement Fund (SIF) pre-application to purchase Kenco Marine Services.
- 1993-23 EB/DRP Panel is a co-sponsor for the SIF proposal submitted by the Muckleshoot Indian Tribe to purchase property and perform habitat development activities (proposal referred to as Kenco). The Project has been selected by SIF for partial funding. The Panel resolves to underwrite the completion of the Phase I Environmental Audit Report required by SIF not to exceed \$5,000.00.
- 1996-16 EB/DRP authorizes the allocation of habitat development property acquisition funds not to exceed \$225,000.00 in support of acquiring a site in the Turning Basin GFA by the Muckleshoot Indian Tribe for habitat development into perpetuity.
- 1997-05 EB/DRP authorizes the Muckleshoot Indian Tribe's budget of \$38,921.75 for project management and Level 2 site analysis costs for attempting to acquire a habitat parcel in the Turning Basin. Funds are to be credited against the real estate obligation of the Consent Decree (King County to transmit check to Muckleshoot Indian Tribe).
- 1997-11 EB/DRP Panel rescinds as no longer necessary, Resolution 1993-23 (unnecessary funding for the Phase 1 Environmental Audit in the Turning Basin).
- 1997-12 Allocates \$254,200.00 for Turning Basin Property Acquisition (this sum in addition to funds allocated by Resolutions 1996-16 and 1997-05). Total funding allocated for real estate acquisition in the Turning Basin is \$518,121.75.
- 1997-19 Authorizes property acquisition credit of \$479,200.00 to King County for a Turning Basin Vicinity Project. The County and Tribe have entered into an agreement to expend additional funds from a Shoreline Improvement

APPENDIX A



Fund grant which will supplement property acquisition credit from the Panel.

- 1998-11 Authorizes planning/design and construction expenditures up to \$114,093.00 for the Muckleshoot Indian Tribe to coordinate the planning, design, and permitting of a habitat development project at the Turning Basin Vicinity (Kenco Site).

#### Meeting Minutes

- 3/11/93 Habitat: The Muckleshoot Tribe proposes to act as the sponsor to purchase and develop (restore) the Kenco Marine property with SIF funding.
- 4/09/93 Panel: Resolution 1993-2 approved.
- 6/03/93 Panel: Muckleshoot SIF proposal update. The Kenco proposal to the Regional Shoreline Improvement Fund Committee names the EB/DRP Panel and US Army Corps of Engineers as co-sponsors. The proposal is two tiered: first tier is acquisition and structural demolition, second tier includes restoration development.
- 6/24/93 Panel: Announcement of a Public Meeting of the SIF Technical Committee (July 14) for public comment on proposed SIF projects (including Kenco proposal).
- 10/28/93 Habitat: Update on Muckleshoot SIF proposal. The proposal has been approved for 60% of the acquisition costs. A phase I environmental audit is requested by the SIF Committee. The HDTWG is supportive of Panel backing of project with the EB/DRP Panel as co-sponsor. The site will be ranked with the site selection matrix.
- 11/04/93 Panel: SIF Committee awarded 60% real estate acquisition costs with a Phase I environmental audit requirement. The ACOE, USFWS, and DOE are doing some components of the audit. The EB/DRP Panel agreed to underwrite the initial phase I audit.
- 12/02/93 Panel: Status update. Site ranking resulted in "high priority" grouping. Resolution 1993-23 approved (Panel funding in addition to SIF funds).
- 1/27/94 Habitat: Status report. Approximately \$30K of SIF funds have been provided in order to identify matching funds.
- 2/10/94 Habitat: Status report. The COE will appraise the Kenco property, conduct a level I environmental site assessment, and write a workplan for a level II assessment if warranted.



3/30/95     Habitat:   Corps of Engineers provides a briefing of the Section 1135 program.   Potentially eligible projects in the Turning Basin include City Light North and Kenco Marine.

12/07/95     Panel:   HDTWG recommends examining new restoration sites.   Kenco site is included.

6/13/96     Habitat:   SIF update.

7/11/96     Panel:   SIF update - \$400K granted for acquisition of Kenco or a site in the vicinity of the Turning Basin. SIF funds were provided with the expectation of matching funds being secured.   Benefits of Panel participation through providing matching funds discussed.

7/18/96     Special Panel:   Resolution 1996-16 approved (obligating up to \$225,000.00 for property acquisition).

8/08/96     Habitat:   Contract outlined for the transfer of SIF funds to the Muckleshoot Tribe for property acquisition in Turning Basin.   SIF funds will be placed in an escrow account to be spent by 12/30/97.

10/03/96     Panel:   Muckleshoot Tribe provides a draft "Kenco Marine/Duwamish Turning Basin No.3 Proposal - Implementation Plan."   [property acquisition task encompasses all real estate activities from negotiations to sale and transfer of title to the U.S. in trust for the Muckleshoot Indian Tribe.]

1/30/97     Habitat:   Review of draft proposal.  
Total budget = \$641K.  
(P&D = \$131K,   Construction/Monitoring = \$510K).

3/06/97     Panel:   Acquisition budget presented to Panel.  
Resolution 1997-5 approved.

3/27/97     Habitat:   Muckleshoot Tribe in final stages of signing an MOU with COE for Phase II environmental investigation.

4/24/97     Habitat:   Muckleshoot Tribe received \$35K from King Co. for acquisition management.   COE has signed agreement for Section 22 Level II site assessment.

5/22/97     Habitat:   Updated draft conceptual budget.   Muckleshoot Tribe is in active negotiations with property owner for acquisition and COE access to conduct site assessment.

6/05/97     Panel:   Resolutions 1997-11 and 1997-12 approved.  
Total Panel funding for project NTE \$518,121.75.  
Acquisition and access negotiations continue.



6/19/97 Habitat: Updated "Muckleshoot Indian Tribe Kenco Marine/Duwamish Turning Basin No. 3 Estuarine Habitat Restoration Proposal: Scope, Schedule, Management Plan and Budget" submitted.

9/18/97 Habitat: Limited scope property appraisal conducted by Gail J. Harmon for the Muckleshoot Tribe submitted to the EB/DRP Panel.

10/02/97 Panel: Appraisal discussed. Resolution 1997-19 approved authorizing credit (to King County) NTE \$479,200.00 to be provided to Muckleshoot Indian Tribe to acquire property in the Turning Basin. (County and Tribe have agreement to expend additional funds from the Shorelines Improvement Fund grant to purchase property).

12/18/97 Habitat: Kenco property sale closed. Former owner is now a tenant and will be off the property with all vessels removed by July 31, 1998.

3/26/98 Habitat: Design contractor selected.

5/14/98 Special Panel: Resolution 1998-11 approved (authorizes P&D + Construction of \$114,093.00).

8/20/98 Habitat: FishPro (consultant) provides sketches of plan options. All vessels have been removed from the site.

10/01/98 Panel: Preliminary design presented to Panel. Public meeting scheduled. Restrictive covenant (in perpetuity) provided for Administrative Record.

10/15/98 Habitat: Final revision of FishPro design options.

10/21/98 Public Meeting: City of Tukwila Community Center Public Hall. Design options presented to public for comment.

11/19/98 Habitat: Public comment reviewed. Project design conceptually one without protective spits.

12/17/98 Habitat: Preliminary design selected based on public input.

1/07/99 Panel: Preferred design alternative presented, project will utilize "soft" features (wood) and less rock in intertidal bench construction and no protective spits. Permit application process begins.

1/28/99 Panel: Pre-application meeting with City of Tukwila held 1/14/99.

3/25/99 Habitat: Updated construction cost estimate provided.

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Construction to take three months. A contractor will prepare and Environmental Assessment (EA). NOAA will remain the action agency for NEPA compliance. Referral to the Muckleshoot Tribal Council for a new name for the site.

- 5/25/99     Habitat: Permit applications submitted. Draft EA prepared by FishPro undergoing review.
- 6/17/99     Habitat: JARPA permit resubmitted to COE. Biological Assessment (BA) needs to be prepared for ESA compliance.
- 10/21/99    Habitat: Contractor EA completed. Copy forwarded to NOAA for review. A contractor will prepare a BA to include Bull Trout. No progress on new name for site. Construction bids out in January 2000. Project to be completed in year 2000.



## **Appendix B. Detailed Description of the Green/Duwamish Basin**

The lower ten-mile segment of the Green/Duwamish River (WRIA 09.0001) system from the City of Renton to Elliot Bay by Seattle is known as the Duwamish River. The rest of the river, upstream from the its confluence of the Black River, which is approximately the upper extent of tidal influence, is known as the Green River (Williams *et al.* 1975). Historically, the Duwamish/Green River drained a 1,642 square miles watershed (US Army Corps of Engineers [Corps] 1997). The three main sub-basins, the Black, Green, and White Rivers were separated for navigation and flood control in the early 20th century (Blomberg *et al.* 1988). The White River was diverted by a high water event in 1906 and retained in the new channel. The bulk of the Black River was drained permanently in 1916 with the construction of the Ballard Locks in Lake Washington and the lowering of Lake Washington, with flow now restricted to a small tributary, Springbrook Creek. Currently the Duwamish drains only the Green River basin of 483 square miles. As a result, the present watershed of the Duwamish/Green represents a 93% reduction from historical levels in accessible length for anadromous fish (Blomberg *et al.* 1988).

Furthermore, the remnants of this system, the present Green/Duwamish basin have been greatly modified from its pre-development ability to create and maintain salmon habitat. The City of Tacoma built a water diversion dam at RM 61 in 1913. The US Army Corps of Engineers Howard Hanson Dam was constructed at RM 64.0 in 1961. Neither dam was built with fish passage facilities, eliminating access to an estimated 107 miles of historic anadromous fish habitat (Corps 1998) as well as dramatically altering the quantity and quality of downstream salmon habitat. The lower floodplain, below RM 37.3, historically consisted of rapidly shifting meanders, but now this area is almost completely contained within levees or revetments, resulting in the lack of riparian cover, large woody debris, off-channel rearing areas, and reduced channel storage capacity (Corps 1997; Fuerstenberg *et al.* 1996). Flood control operations at the HHD have encouraged further urban and commercial development in the floodplain (Corps 1997, 1998; Fuerstenberg *et al.* 1996), which have reduced the extent of the riparian corridor, filled side channels and degraded water quality and quantity. The lower 10 miles of the river, the reach in which the project is located has been almost completely altered from its pre-development condition (Blomberg *et al.* 1988). The Duwamish estuary once contained nearly 5,300 acres of intertidal mudflats, marshes and riparian habitats (Blomberg *et al.* 1988). Today, only 2% of these areas exist in the Duwamish River (Blomberg *et al.* 1988). Since settlement, there has been a 98% loss of shallows, intertidal mudflats and tidal marshes in Green/Duwamish estuary and a 100 percent loss of tidal swamps (Blomberg *et al.* 1988). As a result, Blomberg *et al.* (1988) estimated that there are only 45 acres of intertidal mudflat and tidal marsh left in the Duwamish Estuary. Of the 22.6 miles of total shoreline length between the mouth and River Mile 6.5, (an area 1.3 mile distance upstream from the project site), 44% is rip rapped, 34% covered by pier aprons and 7% covered by sheet piling, leaving approximately 15% in lessor forms of disturbance (derived from data in Tanner 1991). Furthermore, a considerable portion of the remaining intertidal and shallow subtidal portions of the Green/Duwamish estuary is covered by barges (Muckleshoot Indian Tribe Fisheries Department [MITFD], unpub. data).

The result of these alterations is that 1) both the extent and quality of habitat has declined greatly and 2) the natural processes that contribute to the formation and maintenance of salmon habitat in the Green/Duwamish River severely diminished. The diminishment of these



natural processes have significantly reduced the to form salmon habitat in both the freshwater and estuarine reaches of the river (Corps 1997). Given the dramatic reduction in sediment inputs and channel confinement (Corps 1997), it is unlikely that natural processes will create additional habitat in the Duwamish estuary.



**ESA STATUS - WASHINGTON STATE ANADROMOUS SALMONIDS - APRIL 1999**

Species	(E=endangered, T=threatened, Date is for FR publication)		
	Listed	Proposed	Candidate
Coho ( <i>Oncorhynchus kisutch</i> )	None	None	1) Puget Sound/St. of Georgia (7/95) 2) SW WA/L. Col. R. (7/95)
Steelhead ( <i>O. mykiss</i> )	1) Upper Col. R. (E - 8/97) 2) Snake R. (T - 8/97) 3) Lower Col. R. (T - 3/98) 4) Middle Col. R. (T - 3/99)	None	None
Chum ( <i>O. keta</i> )	1) Hood Canal Summer (T-3/99) 2) Columbia River (T-3/99)	None	None
Chinook ( <i>O. tshawytscha</i> )	1) Snake R. fall (T - 4/92) 2) Snake R. spg/summer (T - 4/92) 3) Upper Col. R. Spring (E - 3/99) 4) Puget Sound (T - 3/99) 5) Lower Col. R. (T-3/99)	None	None
Sockeye ( <i>O. nerka</i> )	1) Snake R. (E - 11/91) 2) Ozette Lake (T - 3/99)	None	None
Pink ( <i>O. gorbuscha</i> )	None	None	None
Silver Salmon ( <i>O. clarki cherkovi</i> )	None	1) SW Wash/Col River (T-4/99)	None

NOTE: Listing rules announced on 3/24-25/99 will become effective 60 days after Federal Register publishing.





## United States Department of the Interior

### FISH AND WILDLIFE SERVICE

North Pacific Coast Ecoregion  
Western Washington Office  
510 Desmond Drive SE, Suite 102  
Lacey, Washington 98503  
Phone: (360) 753-9440 Fax: (360) 753-9518

March 15, 1999

Richard Covert  
Project Manager  
FISHPRO, Inc.  
3780 S.E. Mile Hill Drive  
Port Orchard, WA 98366

FWS Reference: 1-3-99-SP-0319

Dear Mr. Covert:

This is in response to your letter of February 17, 1999, and received in this office on February 19, 1999. You have requested a list of listed and proposed threatened and endangered species, candidate species, and species of concern (Attachment A) that may be present within the area of the proposed Duwamish River at the Turning Basin project in King County, Washington. This response fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act of 1973, as amended (Act). We have also enclosed a copy of the requirements for U.S. Army Corps of Engineers (COE) compliance under the Act (Attachment B).

Should the COE determine that a listed species is likely to be affected (adversely or beneficially) by the project, you should request section 7 consultation through this office. If the COE determines that the proposed action is "not likely to adversely affect" a listed species, you should request Service concurrence with that determination through the informal consultation process. Even if there is a "no effect" situation, we would appreciate receiving a copy for our information.

Both listed and proposed species may occur in the vicinity of the project. Therefore, pursuant to the regulations implementing the Act, impacts to both listed and proposed species must be considered by the COE in a biological assessment (see Attachment B for more information on preparing biological assessments). Formal conference with the Service is required if the COE determines that the proposed action is likely to jeopardize the continued existence of a proposed species, or result in the destruction or adverse modification of proposed critical habitat. The results of the biological assessment will determine if conferencing is required. If the species is ultimately listed, your agency may be required to reinitiate consultation.



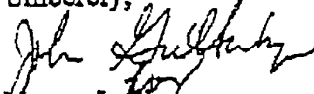
Candidate species are included simply as advance notice to federal agencies of species which may be proposed and listed in the future. Species of concern are those species whose conservation standing is of concern to the Service, but for which further status information is still needed. Conservation measures for species of concern are voluntary, but recommended. Protection provided to these species now may preclude possible listing in the future.

There may be other federally listed species that may occur in the vicinity of your project which are under the jurisdiction of the National Marine Fisheries Service (NMFS). Please contact NMFS at 360-753-9530 to request a species list.

In addition, please be advised that state regulations may require permits in areas where wetlands are identified. You should contact the Washington State Department of Ecology for state permit requirements.

Your interest in endangered species is appreciated. If you have additional questions regarding your responsibilities under the Act, please contact Bobbi Barrera (360/753-6048) or John Grettenberger of this office at the letterhead phone/address.

Sincerely,



Nancy J. Gloman  
Acting Supervisor

bb/bp

Enclosure

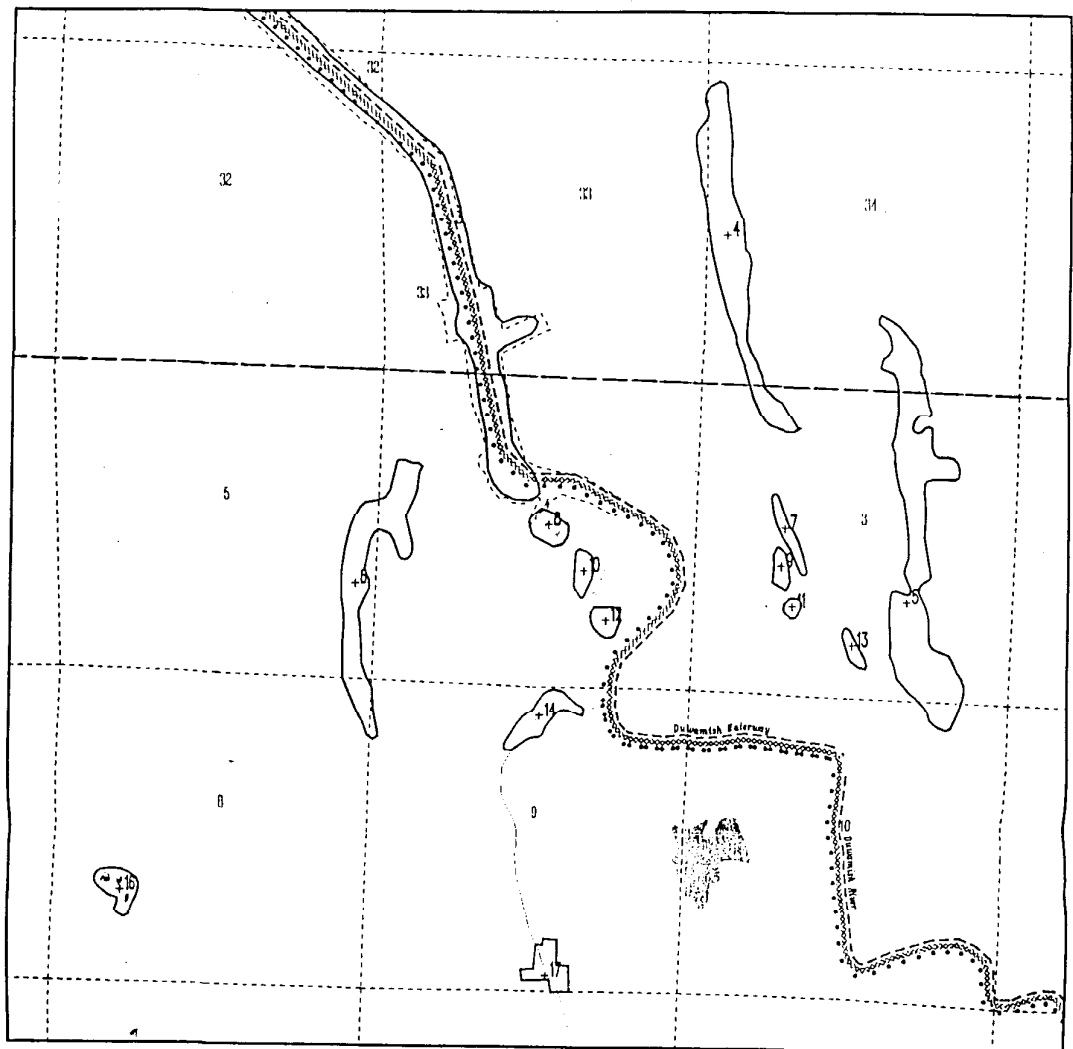
SE/COE/1-3-99-SP-0319/King

c: COE

WDFW, Region 4

WNHP, Olympia.





WASHINGTON DEPARTMENT OF FISH AND WILDLIFE  
HABITATS AND SPECIES MAP  
IN THE VICINITY OF T23R04E SECTION 4

Map Scale - 1 : 24000  
Coordinate System - State Plane South Zone 5626  
Production Date - May 24, 1999  
Cartography by WDFW Habitat and Lands Program GIS

PLEASE NOTE

This map may contain some species not considered priority. Spotted owl and marbled murrelet information are not included in accompanying reports.

DISCLAIMER

This map only includes information that Washington Department of Fish and Wildlife (WDFW) maintains in a central computer database. It is not an attempt to provide you with an official agency response as to the impacts of your project on fish and wildlife. This information only documents the location of fish and wildlife resources in the best of our knowledge. It is not a complete inventory and it is important to note that fish and wildlife resources may occur in areas not currently known to WDFW biologists, or in areas for which comprehensive surveys have not been conducted. Site specific surveys are frequently necessary to rule out the presence of priority resources.

Locations of mapped wildlife and habitat features are generally within a quarter mile of the locations displayed on this map. Locations of fish and wildlife resources are subject to variation caused by disturbance, changes in season and weather, and other factors. WDFW does not recommend using maps more than six months old.

To insure appropriate use of this information, users are encouraged to consult with WDFW biologists.

MAIN DATA SOURCES

Priority Habitats and Species (PHSPOLY and HABPIS) data: WDFW Habitat and Lands Program  
Wildlife Heritage (HRIG), Spotted Owl, and Marbled Murrelet (MAMLPIS) data: WDFW Wildlife Management Program  
1:100,000 Streams and Fish Presence data: WDFW StreamNet Database  
National Wetlands data: US Fish and Wildlife Service  
Seabird Colony data: US National Oceanic and Atmospheric Administration

- Habitats and Species Polygon Borders (PHSPOLY)
- Wildlife Heritage Points (HRIG)
- Marbled Murrelet Points (MAMLPIS) (Occupancy Sites Only)
- Habitat Points (HABPIS)
- Seabird Colonies (NOAA)
- Spotted Owl Management Circles Established Territory
- Spotted Owl Management Circles Insufficient Data To Establish Territory
- Marbled Murrelet Buffers
- Rivers and Streams at 1:100,000 Scale Resolution
- Anadromous Fish Presence
- Resident Fish Presence
- Priority Anadromous/Resident Fish Presence
- Wetlands (NWM)
- Kelp Beds (ZNR)



AREA LOCATION



## SPECIES OF CONCERN

The following species of concern may occur in the vicinity of the project:

Long-eared myotis (*Myotis evotis*)

Long-legged myotis (*Myotis volans*)

Olive-sided flycatcher (*Contopus cooperi*)

Pacific lamprey (*Lampetra tridentata*)

Pacific Townsend's big-eared bat (*Corynorhinus townsendii townsendii*)

River lamprey (*Lampetra ayresi*)



## ATTACHMENT B

### FEDERAL AGENCIES' RESPONSIBILITIES UNDER SECTIONS 7(a) AND 7(c) OF THE ENDANGERED SPECIES ACT OF 1973, AS AMENDED

#### SECTION 7(a) - Consultation/Conference

- Requires:
1. Federal agencies to utilize their authorities to carry out programs to conserve endangered and threatened species;
  2. Consultation with FWS when a federal action may affect a listed endangered or threatened species to ensure that any action authorized, funded, or carried out by a federal agency is not likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat. The process is initiated by the federal agency after it has determined if its action may affect (adversely or beneficially) a listed species; and
  3. Conference with FWS when a federal action is likely to jeopardize the continued existence of a proposed species or result in destruction or an adverse modification of proposed critical habitat.

#### SECTION 7(c) - Biological Assessment for Construction Projects \*

Requires federal agencies or their designees to prepare a Biological Assessment (BA) for construction projects only. The purpose of the BA is to identify any proposed and/or listed species which is/are likely to be affected by a construction project. The process is initiated by a federal agency in requesting a list of proposed and listed threatened and endangered species (list attached). The BA should be completed within 180 days after its initiation (or within such a time period as is mutually agreeable). If the BA is not initiated within 90 days of receipt of the species list, please verify the accuracy of the list with our Service. No irreversible commitment of resources is to be made during the BA process which would result in violation of the requirements under Section 7(a) of the Act. Planning, design, and administrative actions may be taken; however, no construction may begin.

To complete the BA, your agency or its designee should: (1) conduct an onsite inspection of the area to be affected by the proposal, which may include a detailed survey of the area to determine if the species is present and whether suitable habitat exists for either expanding the existing population or potential reintroduction of the species; (2) review literature and scientific data to determine species distribution, habitat needs, and other biological requirements; (3) interview experts including those within the FWS, National Marine Fisheries Service, state conservation department, universities, and others who may have data not yet published in scientific literature; (4) review and analyze the effects of the proposal on the species in terms of individuals and populations, including consideration of cumulative effects of the proposal on the species and its habitat; (5) analyze alternative actions that may provide conservation measures; and (6) prepare a report documenting the results, including a discussion of study methods used, any problems encountered, and other relevant information. Upon completion, the report should be forwarded to our Endangered Species Division, 510 Desmond Drive SE, Suite 102, Lacey, WA 98503-1273.

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\* "Construction project" means any major federal action which significantly affects the quality of the human environment (requiring an EIS), designed primarily to result in the building or erection of human-made structures such as dams, buildings, roads, pipelines, channels, and the like. This includes federal action such as permits, grants, licenses, or other forms of federal authorization or approval which may result in construction.



## ATTACHMENT A

### LISTED AND PROPOSED ENDANGERED AND THREATENED SPECIES, CANDIDATE SPECIES AND SPECIES OF CONCERN WHICH MAY OCCUR WITHIN THE VICINITY OF THE DUWAMISH RIVER AT TURNING BASIN PROJECT IN KING COUNTY, WASHINGTON

(TT23N R04E S04)

FWS REF. #: 1-3-99-SP-0319

#### LISTED

Bald eagle (*Haliaeetus leucocephalus*) - Wintering bald eagles may occur in the vicinity of the project. Wintering activities occur from October 31 through March 31.

Peregrine falcon (*Falco peregrinus*) - spring and fall migrant falcons may occur in the vicinity of the project.

Major concerns that should be addressed in your biological assessment of the project impacts to listed species are:

1. Level of use of the project area by listed species.
2. Effect of the project on listed species' primary food stocks, prey species, and foraging areas in all areas influenced by the project.
3. Impacts from project construction (i.e., habitat loss, increased noise levels, increased human activity) which may result in disturbance to listed species and/or their avoidance of the project area.

#### PROPOSED

Bull trout (*Salvelinus confluentus*) - Coastal/Puget Sound population may occur in the vicinity of the project.

#### CANDIDATE

The following candidate species may occur in the vicinity of the project:

Oregon spotted frog (*Rana pretiosa*)



IN THE VICINITY OF TOWNSHIP T23R04E SECTION 4  
 Date of report: May 24, 1999

PRIORITY ANADROMOUS FISH PRESENCE

CODE	COMMON NAME	STREAM NAME
CHFA	Fall Chinook	Duwamish River
CHUM	Chum Salmon	Duwamish River
COHO	Coho Salmon	Duwamish River
PINK	Pink Salmon	Duwamish River
SOCK	Sockeye Salmon	Duwamish River
STSU	Summer Steelhead	Duwamish River
STWI	Winter Steelhead	Duwamish River
CHFA	Fall Chinook	Duwamish Waterway
CHUM	Chum Salmon	Duwamish Waterway
COHO	Coho Salmon	Duwamish Waterway
PINK	Pink Salmon	Duwamish Waterway
SOCK	Sockeye Salmon	Duwamish Waterway
STSU	Summer Steelhead	Duwamish Waterway
STWI	Winter Steelhead	Duwamish Waterway

PRIORITY RESIDENT FISH PRESENCE

CODE	COMMON NAME	STREAM NAME
DBT	Dolly Varden/Bull Trout	Duwamish River
DBT	Dolly Varden/Bull Trout	Duwamish Waterway

The fish information in this report only includes data that the Washington Department of Fish and Wildlife (WDFW) maintains in a central database. This information only documents the location of important fish resources to the best of our knowledge. It is not a complete inventory of the fish species in the state. Fish are identified as priority by WDFW if they meet 1 of 3 criterion as listed in the Priority Habitats and Species List.

For questions on the StreamNet Database, please contact Martin Hudson at (360) 902 2487.



PHS POLYGON DATAFORM LIST - IN THE VICINITY  
OF T23R04E SECTION 4

PHSPOLY#	FORMLIST PHSLIST
3	904754 ESTUR*-
4	902038 UNOS*-
5	902038 UNOS*-
6	902037 RIPAR*-
7	902525 WET*-
8	902525 WET*-
9	902525 WET*-
10	902525 WET*-
11	902525 WET*-
12	902525 WET*-
13	902525 WET*-
14	902037 RIPAR*-
16	902524 WET*-
17	902689 UNOS*-

PHS POLYGON SPECIES AND HABITAT LIST

ECFORM	ECODE	CRIT	COMMON NAME	USE CRITERIA
902,037	RIPAR		RIPARIAN ZONES	
902,038	UNOS		URBAN NATURAL OPEN SPACE	
902,524	WET		WETLANDS	
902,525	WET		WETLANDS	
902,689	UNOS		URBAN NATURAL OPEN SPACE	
904,754	ESTUR		ESTURINE ZONE	

Form number 900000 indicates presence of PHS is unknown or the area was not mapped. Form numbers 909998, 909997, or 909996 indicate compilation errors.

WILDLIFE HERITAGE POINT DATA - IN THE VICINITY  
OF T23R04E SECTION 4

QUADPT #	SPPCODE	CRIT	COMMON NAME	USE CRITERIA
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WASHINGTON DEPT OF FISH AND WILDLIFE

PRIORITY HABITATS AND SPECIES

Tabular Data Report - General Information - Draft  
05/24/1999

form: 902,037 species/habitat: RIPAR species use: season: accuracy: 1

sitename: SOUTHERN HEIGHTS TRIBUTARIES TO DUWAMISH R.  
general description:  
RELATIVELY STEEP FORESTED RAVINES WITH SMALL PERENNIAL STREAM.

source: MULLER, TED; WDW; PERSONAL OBSERVATION.

date: 08 89 code: PROF

synopsis:

VISITED SITE IN 1989 TO ESTABLISH MITIGATION FOR HPA.

form: 902,038 species/habitat: UNOS species use: season: accuracy: 1

sitename: SOUTH BEACON HILL/EMPIRE WAY. OPEN SPACES.  
general description:  
FORESTED HILLSIDES ON SOUTH BEACON HILL.

source: MULLER, TED; WDW; PERSONAL OBSERVATION.

date: 03 91 code: PROF

synopsis:

HAVE DRIVEN BY THESE SITES NUMEROUS TIMES.

form: 902,524 species/habitat: WET species use: season: accuracy: 1

sitename: MILLER CREEK WETLANDS  
general description:  
TWO SHRUB/FOREST AND TWO EMERGENT MARSH WETLANDS.

source: GSMAP, 1973.

date: 73 code: GSMAP

synopsis:

USED GSMAP TO ESTABLISH BOUNDARIES.

source: MULLER, TED; WDW; PERSONAL OBSERVATION.

date: 83 code: PROF

synopsis:

LIVED IN THE AREA FOR TEN YEARS.



PRIORITY HABITATS AND SPECIES  
Tabular Data Report - General Information - Draft  
05/24/1999

form: 902,525 species/habitat: WET species use: season: accuracy: 1  
sitename: GREEN RIVER WETLANDS (LOWER RIVER).  
general description:  
VARIOUS TYPES OF WETLANDS THROUGHOUT THE LOWER GREEN RIVER VALLEY (DOWNSTREAM FROM FLAMING GEYSER PARK). SOME OF THESE ALSO HAVE OPEN WATER COMPONENTS.

source: KING COUNTY SENSITIVE AREAS MAPS.  
date: 12 90 code: GSMAP  
synopsis:  
A USGS BASED MAP SYSTEM ALSO USING NWI INFORMATION.

source: MULLER, TED; ET AL; WDW, SCS, AND COUNTY.  
date: 91 code: PROF  
synopsis:  
MANY OF THESE SITES HAVE BEEN VISITED BY FIELD STAFF.

form: 902,689 species/habitat: UNOS species use: season: accuracy: 1  
sitename: CITY/COUNTY PARKS (SOUTH SEATTLE)9  
general description:  
PARKS IN THE BURIED/DEN MOINES AREA. MOST AREAS ARE SEMI-FORESTED AND PROVIDE HABITATS FOR MORE COMMON SPECIES.

source: THOMAS BROS. STREET ATLAS.  
date: 89 code: GSMAP  
synopsis:  
USED STREET ATLAS TO ESTABLISH BOUNDARIES.

source: MULLER, TED, WDW; PERSONAL OBSERVATIONS  
date: 90 code: PROF  
synopsis:  
PERIODIC SITE VISITS IN PAST 20 YEARS.

source: MULLER TED  
date: 05 93 code: MAP  
synopsis:  
MAP EDIT; 08/95; CLARIFY PARK BOUNDARIES OF PARKS IN SEC. 13; T23N; R03E. AND SEC. 07; T22N; R04E.

form: 904,754 species/habitat: ESTUR species use: season: accuracy: 1  
sitename:  
general description:  
BAY/ESTUARY-COASTAL ZONE ATLAS CODE 54-MODERATELY PROTECTED MARINE EMBAYMENTS WITH FREE CONNECTIONS WITH THE OPEN SEA. BLUFFS, REACH SUBSTRATES MARSHES, EELGRASS BEDS, AND OTHER INTERTIDAL HABITATS ARE ASSOCIATED WITH IT.

source: COASTAL ZONE ATLAS OF WASHINGTON. STATE OF WASHINGTON DEPT OF ECOLOGY.



**Elliott Bay/Duwamish Restoration Panel  
Panel Resolution 1997-12**

**Allocation (\$254,200) for Turning Basin Property Acquisition to Muckleshoot Indian Tribe.**


**Adopted: 5 June 1997**

**Consent Decree: ¶ 9c planning and study activities; ¶30 property acquisition**

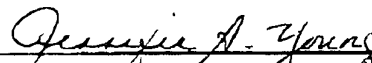
**Resolutions: 1993-02, 23 - Property Selection, Sponsorship  
1996-16 - Property Acquisition  
1997-05 - Project Management and Level 2 Site Analysis**

The Elliott Bay/Duwamish Restoration Program Panel hereby authorizes the allocation of habitat development property acquisition funds not to exceed \$254,200.00. This sum is in addition to the property acquisition funds allocated in Resolution 1996-16 (\$225,000.00) and project management and level 2 site analysis funds allocated by Resolution 1997-05 (\$38,921.75). The total Panel funding allocated to the Muckleshoot Indian Tribe for real estate acquisition for a habitat development project in the Turning Basin Geographic Focus area is not to exceed \$518,121.75.

Expenditure of the funds so allocated shall be conditioned upon the execution by the Muckleshoot Indian Tribe of a deed restriction on the acquired property in a form acceptable to the Panel requiring use of the property to be consistent with habitat restoration and the Consent Decree.



**Robert C. Clark, Jr., Panel Chair**



**LT Jennifer Young, Panel Secretary**





## MUCKLESHOOT INDIAN TRIBE

39015 172nd Avenue S.E. • Auburn, Washington 98092-9763

Phone: (206) 939-3311 • (206) 939-5311



May 22, 1997

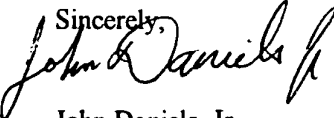
Elliott Bay Duwamish Restoration Program Panel  
C/o Dr. Robert Clark, Director  
NOAA Restoration Center Northwest  
National Marine Fisheries Service  
7600 Sand Pint Way NE  
Seattle, WA 98115-0070

Dear Panel Representatives:

As you know, the Muckleshoot Indian Tribe has been involved in negotiations to acquire a parcel in the Turning Basin to restore habitat in perpetuity. Panel Resolution 1993-19 designates the Turning Basin as a Geographic Focus Area.

Per Panel Resolution 1996-16 the Muckleshoot Indian Tribe was allocated funds not to exceed \$225,000.00 in support of acquiring habitat development property in the Turning Basin. The Muckleshoot Indian Tribe requests and additional allocation of up to \$254,200 for the purpose of concluding negotiations and acquisition of the Kenco Marine Services property within the Turning Basin of the Duwamish River before December 31, 1997.

If the Panel approves the Tribe's request, further instructions will be provided to the Panel concerning the timing and method of disbursement.

Sincerely,  


John Daniels, Jr.  
Chairman, Tribal Council



**Elliott Bay/Duwamish Restoration Panel  
Panel Resolution 1998-11**

Authorizes planning & design and construction expenditures (\$114,093) to the Muckleshoot Indian Tribe for the Turning Basin/Kenco Project.

Adopted: 14 May 1998

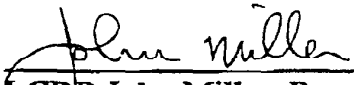
Consent Decree: ¶ 15 planning and study activities; ¶ 27(b) habitat development

Resolutions:	1993-02, 23	Panel cosponsoring for SIF application
	1993-19	Designating Geographic Focus Areas
	1996-16	Property acquisition
	1997-05	Property management and Level 2 site analysis
	1997-12	Allocation of additional acquisition funds
	1997-14	Scope, Schedule, Budget
	1997-19	Property acquisition credit

The Elliott Bay/Duwamish Restoration Program Panel hereby authorizes up to \$114,093 (\$108,918 for P&D, \$5,175 for construction) for the Muckleshoot Indian Tribe to coordinate the planning, design, and permitting of a project for habitat development at the Turning Basin Vicinity/Kenco site.

By unanimous consent,

  
Robert C. Clark, Jr., Panel Chair

  
LCDR John Miller, Panel Secretary





# MUCKLESHOOT INDIAN TRIBE

## FISHERIES DEPARTMENT



12 April 1999

US Army Corps of Engineers  
Regulatory Branch  
PO Box 3755  
4735 E. Marginal Way S.  
Seattle, WA 98124-2255

Washington Department of Fish and Wildlife  
Fish Habitat Program  
16018 Mill Creek Boulevard  
Mill Creek, WA 98012-1296  
Attn: Pamela Erstad, Fish Biologist

City of Tukwila  
Department of Community Development  
6300 Southcenter Boulevard  
Tukwila, WA 98188

Washington Department of Natural Resources  
South Puget Sound Region  
P.O. Box 68  
Enumclaw, WA 98022

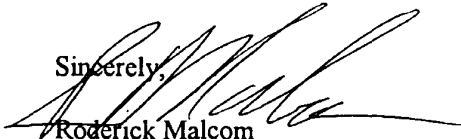
### SUBJ: JARPA APPLICATION FOR A HABITAT DEVELOPMENT PROJECT IN THE DUWAMISH RIVER

The Elliott Bay/Duwamish Restoration Program is a cooperative, intergovernmental program established to restore and replace natural resources injured by the discharge of oil or releases of hazardous materials in Elliot Bay and the Duwamish River. To further the efforts of the Panel to restore habitat in the Duwamish River, the Muckleshoot Tribe, one of the Panel's natural resource trustees, purchased the Kenco Marine property in Turning Basin Number 3 of the Duwamish River.

Habitat development in this area would provide a considerable benefit to outmigrating juvenile salmonid species, especially chum and chinook that are particularly dependent upon estuarine habitat. To develop the habitat, it is the Tribe's intent to remove the existing wharf, upland structures and fill material to restore intertidal habitat in this reach of the Duwamish River. To this end, the Tribe is submitting the enclosed JARPA form.

If you have any questions or need more information regarding technical aspects of the application, please phone Marian Berejikian, the Tribe's agent as listed on the JARPA form. Questions regarding the relationship of this project to the Elliott/Bay Duwamish Restoration Program should be directed to me. I thank you for your time and consideration.

Sincerely,

  
Roderick Malcom  
Senior Habitat Biologist

Encl: 2

cc: King County Parks and Recreation Department  
National Marine Fisheries Service  
United States Fish and Wildlife Service





AFTER RECORDING RETURN TO:

## Muckleshoot Indian Tribal Council

39015 172nd Avenue S.E. • Auburn, Washington 98092-9763

(253) 939-3311 Fax (253) 931-8570



Realty

Mr. William Blakney  
Senior Deputy Prosecuting Attorney  
Office of the King County Prosecuting Attorney  
4800 Columbia Center  
701 Fifth Avenue  
Seattle, Washington 98104

### RESTRICTIVE COVENANT

THIS RESTRICTIVE COVENANT (the "Agreement") dated as of the 8<sup>th</sup> day of November, 1996 is entered into by the MUCKLESHOOT INDIAN TRIBE, a sovereign nation ("Declarant") and KING COUNTY, a political subdivision of the State of Washington ("County") with reference to the following facts:

- A. Declarant is the owner of certain real property located in King County, Washington, and more particularly described in Exhibit A attached hereto and by this reference incorporated herein (the "Property");
- B. The Property consists of improved land located in the Duwamish Turning Basin No. 3;
- C. Declarant intends to develop and preserve the Property as fish and wildlife habitat purposes in perpetuity.

NOW, THEREFORE, for good and valuable consideration, including the mutual promises, covenants and agreements herein contained, Declarant hereby covenants, agrees, and declares that the Property shall be held, hypothecated, leased, sold and conveyed subject to the following conditions and restrictions which shall run with the Property and shall be binding upon and inure to the benefit of all parties acquiring any right, title or interest in the Property or any portion thereof in perpetuity.

1. **Restriction on Use of the Property.** The Declarant shall develop and use the Property as a fish and wildlife habitat and for limited passive public use, exclusively and for no other purpose.
2. **Priority.** This Agreement, and the covenants, conditions, and restrictions contained therein shall be subordinated to any lender's interest in the Property, and any covenants required in connection with any financing of the Property (including covenants related to any tax credits for the Property), and King County agrees to provide documentation of such subordination as may be requested by any lender providing financing for the Property or any beneficiary of any covenant related to tax credits for the Property.

9807021147



9807021147

3. **Duration.** The covenants, conditions, and restrictions contained herein shall run with the land and shall bind, benefit, and burden the Property and shall be binding upon the Declarant and its respective heirs, successors, and assigns in perpetuity from the date of final execution of this Agreement.

4. **Miscellaneous.**

(a) **No Joint Venture.** It is not intended by this agreement to, and nothing contained in this Agreement shall, create any partnership or joint venture or create the relationship of principal and agent between the Declarant and King County, or any of their successors in interest and assigns.

(b) **Enforcement.** In the event of any violation of any of the provisions of this Agreement by the Declarant, King County shall have the right to enforce the covenant by any appropriate proceedings at law or in equity, including the right to apply to a court of competent jurisdiction for an injunction against such violation. Any remedies specifically provided herein and non-exclusive and are in addition to all other remedies available to the owner of any parcel of the Property at law or in equity.

MUCKLESHOOT INDIAN TRIBE  
a sovereign nation

BY: \_\_\_\_\_

John Daniels, Jr., Chairman

KING COUNTY, a political subdivision of the  
State of Washington

BY: \_\_\_\_\_

Its: Director, Department of Natural

Resources



EXHIBIT "A"

Commencing at a point on the Buckley Donation Claim Meander Line, according to Survey of Township 23 North, Range 4 East, W.M., in King County, Washington, on file with the US Department of Interior General Land Office, Spokane, Washington, approved March 31, 1863, where said Point is intersected by an extension of the Southerly boundary line of Tract 55, MOORE'S FIVE ACRE TRACTS, according to the plat thereof recorded in Volume 9 of Plats, page(s) 28, records of King County, Washington, as the True Point of Beginning;  
THENCE Westerly along said Line so extended to the point of intersection thereof with the Easterly marginal line of the right-of-way acquired by the City of Seattle, Department of Lighting, by Cause No. 469557, records of Superior Court of the State of Washington, for King County;  
THENCE Northerly along said Easterly Marginal Line of said Right-of-Way to a point of intersection with the Northerly boundary line of said Tract 55;  
THENCE Easterly along said Easterly Marginal Line of said Right-of-Way to a point of intersection with the Northerly boundary line of said Tract 55;  
THENCE Easterly along said Northerly Boundary Line of Tract 55 to the said Buckley Donation Claim Meander Line;  
THENCE Southerly along said Buckley Donation Claim Meander Line to the True Point of Beginning;

TOGETHER WITH that portion of vacated Fraeger Road adjoining which upon vacation, attached to said Property by Operation of Law;

TOGETHER WITH all land lying to the Easterly of said Buckley Donald Claim Meander Line between an Easterly extension of the Northerly and Southerly lines of said Tract 55 and between the Easterly line of said Buckley Donation Claim and the high water line of the Westerly bank of the Duwamish River;

EXCEPT that portion condemned in King County Superior Court Cause No. 547035 for State Highway No. 1.

SITUATE in the County of King, State of Washington.

END OF EXHIBIT "A"





# MUCKLESHOOT INDIAN TRIBE

## FISHERIES DEPARTMENT



12 Jan 1999

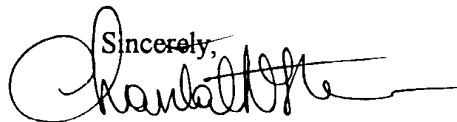
Ms Bonnie Bunning  
Washington Department of Natural Resources  
South Puget Sound Region  
P.O. Box 68  
Enumclaw, WA 98022

Dear Ms. Bunning:

The Elliott Bay/Duwamish Restoration Program (Program) is a cooperative, intergovernmental program pursuant to CERCLA, 42 U.S.C. § 9601 (a) established to restore and replace natural resources injured by the discharge of oil or releases of hazardous materials in Elliot Bay and the Duwamish River. To further the efforts of the Program to restore habitat in the Duwamish River, the Muckleshoot Tribe, one of the Program's natural resource trustees, purchased the Kenco Marine property in Turning Basin Number 3 of the Duwamish River. It is the Tribe's intent to remove the existing wharf, upland structures and fill material to restore intertidal habitat in this reach of the Duwamish River. These actions will require coordination with the adjacent landowners.

As can be seen from the attached survey, most of the site purchased by the Tribe is bounded by the Duwamish River and parts of the property are intertidal. However, it is not clear from the available records which lands in the Turning Basin are owned or managed by the Department of Natural Resources. Therefore, 1) to ensure adjacent property owners, especially those that may own or manage adjoining properties, are aware of the proposed restoration, and 2) that the owners or managers of the lands over which part of the existing wharf are located can be contacted to grant authority to remove the wharf, I am requesting that the Department of Natural Resources inform the Tribe as to the location of lands, including intertidal, owned or managed by the Department in the portion of Turning Basin Number Three shown on the attached survey plan.

For your information, I have also attached a copy of the proposed conceptual restoration plan. If you have any questions or need more information, please feel free to call me at (253) 931-0652, extension 119. I thank you for your time and consideration.

Sincerely,  


Chantal Stevens,  
Manager  
Environmental Division

att: 2



COMING AT A POINT ON THE BUCKLEY DONATION CLAIM HENDER LINE ACCORDING TO SURVEY OF 1849-50, A NORTH, PACE 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 83

SITUATE IN THE COUNTY OF KING STATE OF WASHINGTON

TO MUCKLESHOOT INDIAN TRIBE AND OLD REPUBLIC TITLE LTD.:

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH "MINIMUM STANDARD DETAIL REQUIREMENTS FOR Aerial PHOTOGRAPHIC SURVEYS," JOINTLY ESTABLISHED AND ADOPTED BY THE U.S. ARMY AND U.S. NAVY IN 1968 MEETS THE ACCURACY REQUIREMENTS OF A CLASS B SURVEY, AS DEFINED THEREIN.

James L. Land  
CERTIFICATE NO 16213

RECORDED'S CERTIFICATE

Filed for record this.....day of.....1988 at .....M  
in book.....of surveye page.....at the request of  
DENNIS L. LIND.

## SURVEYOR'S CERTIFICATE

This map correctly represents a survey made by me or under my direction in accordance with the requirements of the Survey Recording Act at the request of M/T

in NOV. of 1957

*James C. Ford*  
Certificate No 16213

ALTA SURVEY FOR  
MUCKLESHOOT INDIAN TRIBE

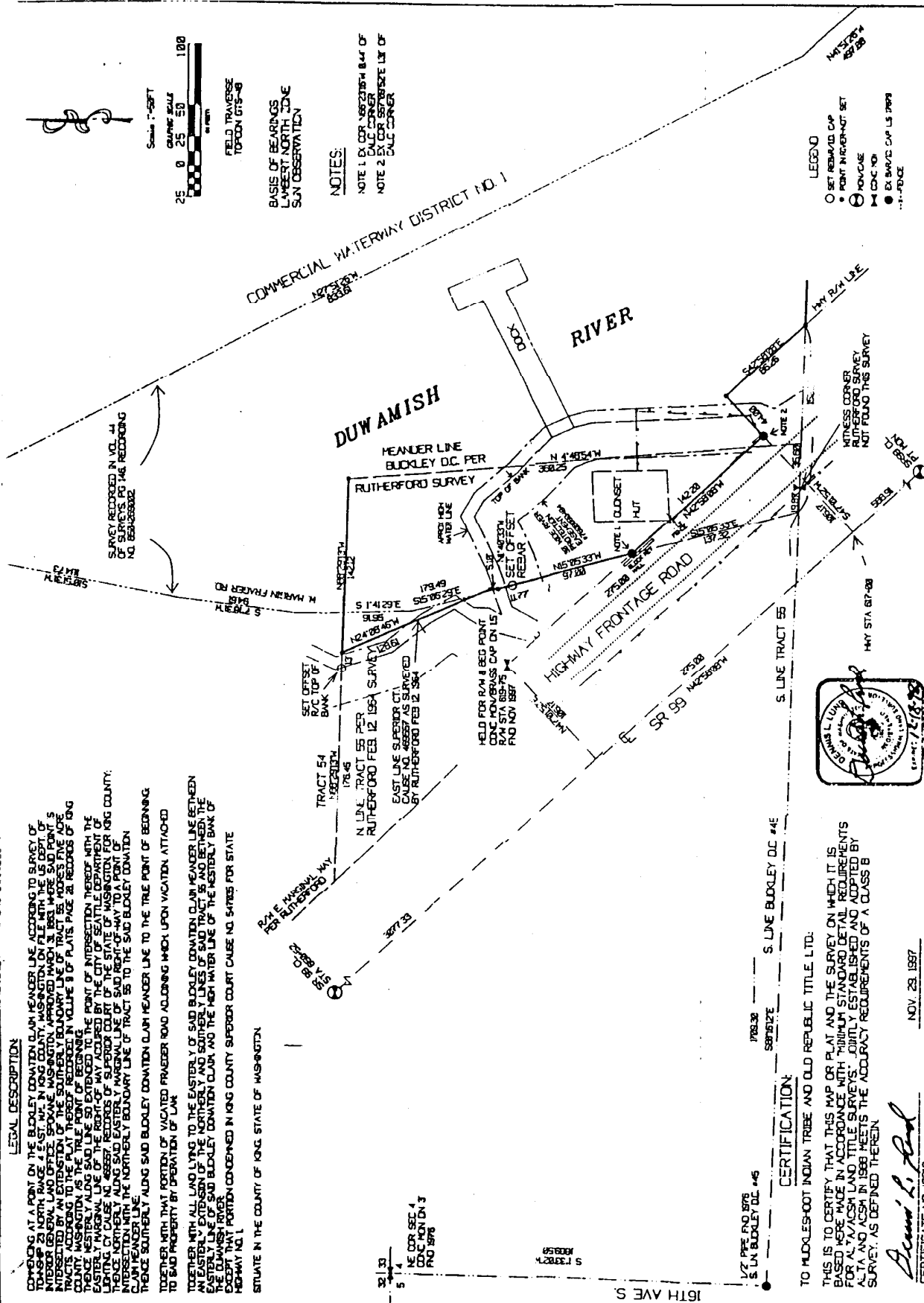
SE 1/4 OF THE NW 1/4 OF SEC 4 T23 N R 4 E W H.

LUND & ASSOCIATES SURVEYORS  
2220 S. 28TH ST.  
FEDERAL WAY, WA. 98003

DATE	11-29-57	DR NO	7957
OWN BY	ULL		

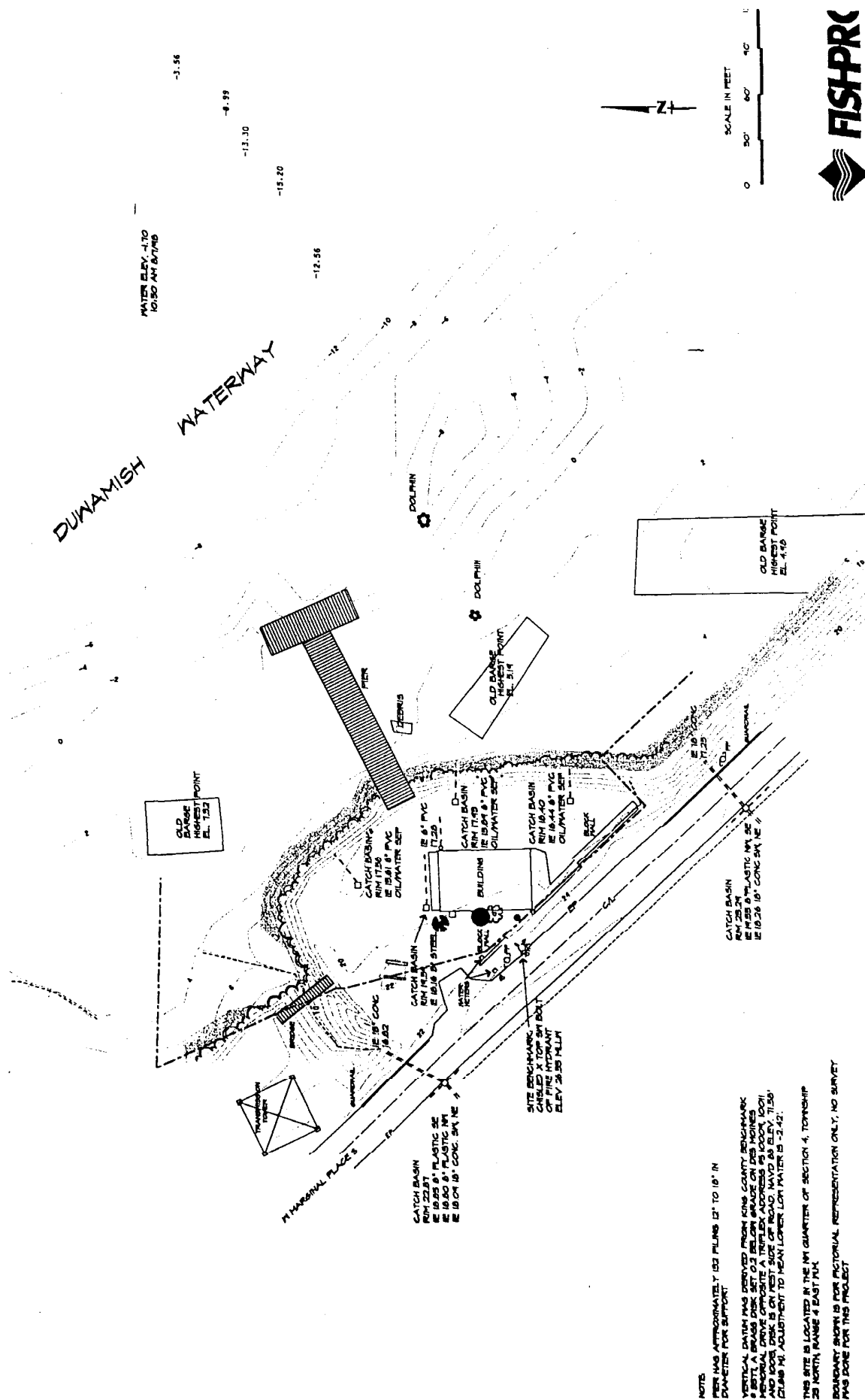
REV.	SCALE	SHEET
	1" = 10'	1

51





# TURNING BASIN #3 RESTORATION EXISTING SITE PLAN





SECTION AA

HORIZONTAL SCALE  
IN FEET (APPROXIMATE)

VERTICAL SCALE  
IN FEET (APPROXIMATE)

0 5' 10' 15' 20' 0 10' 20' 30' 40'

PROPERTY LINE

RIPARIAN ZONE

GROUND COVER AND SHRUB ZONE BENCH

1' MAX

40' MAX

EMERGENT ZONE BENCH

56' MAX

EXISTING GRADE

SAND COVER 3/4 GRAVEL

PROPOSED GRADE

20:1 MAX

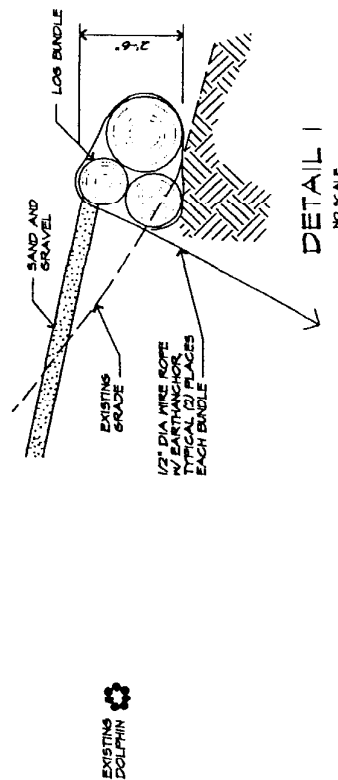
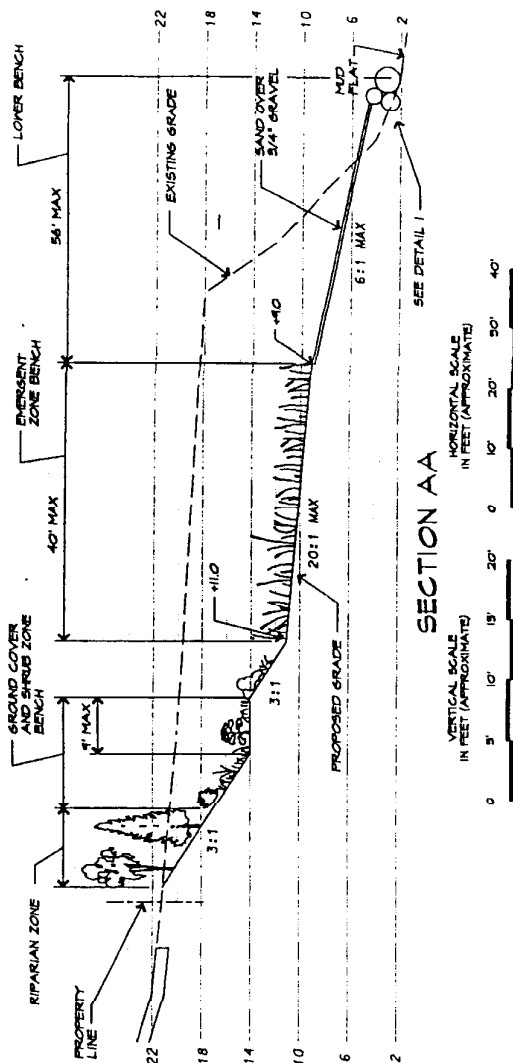
6:1 MAX

MUD FLAT

2

SEE DETAIL 1

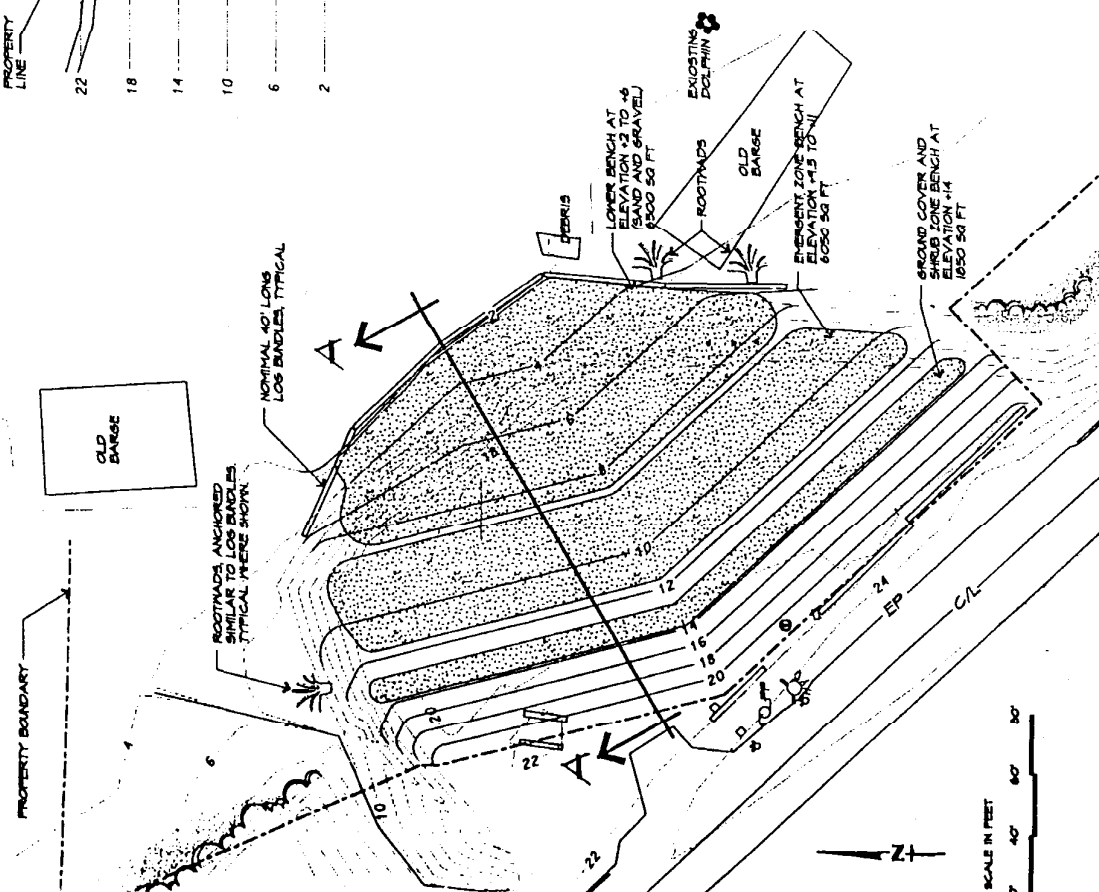
22 18 14 10 6 2



TIDAL DATUMS AT SEATTLE, PUGET SOUND  
ELEVATIONS OF TIDAL DATUMS REFERRED TO MEAN LOWER LOW WATER (MLLW) ARE AS FOLLOWS:

HIGHEST OBSERVED WATER LEVEL (01/27/1903)	14.05 FEET
MEAN HIGH WATER (MHW)	11.95 FEET
MEAN HIGH WATER (M4M)	10.41 FEET
MEAN TIDE LEVEL (MTL)	6.66 FEET
MEAN SEA LEVEL (MSL)	6.63 FEET
MEAN LOW WATER (MLW)	2.03 FEET
NORTH AMERICAN MEAN LOW WATER (NADL)*	2.91 FEET
LOWEST LOW WATER (MLLW)	0.00 FEET
LOWEST OBSERVED WATER LEVEL (06/20/1950)	-4.81 FEET

\* NAVD IS BASED ON ELEVATIONS PUBLISHED IN 1993, AND NOS LEVELING OF 1994.







# MUCKLESHOOT INDIAN TRIBE

## FISHERIES DEPARTMENT



7 Jan 1999

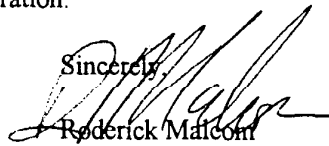
Mr. William P. Cluckey  
Senior Real Property Agent  
Real Estate Services, Room 2808  
Seattle City Light  
700 Fifth Avenue, Suite 3300  
Seattle, WA 98104-5031

Dear Mr. Cluckey:

The Elliott Bay/Duamish Restoration Program is a cooperative, intergovernmental program established to restore and replace natural resources injured by the discharge of oil or releases of hazardous materials in Elliot Bay and the Duamish River. To further the efforts of the Panel to restore habitat in the Duamish River, the Muckleshoot Tribe, one of the Panel's natural resource trustees, purchased the Kenco Marine property in Turning Basin Number 3 of the Duamish River. This property is located immediately to the south of the City Light Substation on Marginal Place SW. The purpose of this letter is to inform City Light of the conceptual project design and solicit your concerns and views at an early stage.

The Duamish River in Turning Basin Number 3 has high biological value, particularly to outmigrating juvenile salmonids. Habitat restoration in this area would provide a considerable benefit to outmigrating juvenile salmonid species, especially chum and chinook that are particularly dependent upon estuarine habitat. To restore the habitat, it is the Tribe's intent to remove the existing wharf, upland structures and fill material to restore intertidal habitat in this reach of the Duamish River. However, the upland portions of the site closest to Marginal Place would be planted with riparian vegetation, including trees. A copy of the conceptual design and the proposed vegetation planting scheme is attached to this letter. A pre-application meeting with the City of Tukwila, the jurisdiction with regulatory authority over the site, has been scheduled for January 14 at 2:30 PM. The meeting location is the Tukwila Permit Center at 6300 Southcenter Boulevard, in Tukwila. Representatives of the design team, photographs and additional information will be available at this meeting. It is my hope that a representative of City Light will be able to attend this pre-application meeting.

If you have any questions or need more information, please feel free to call me at (253) 931-0652, extension 119. I thank you for your time and consideration.

Sincerely,  
  
Roderick Malcolm  
Senior Habitat Biologist







# TURNING BASIN #3 HABITAT BENCHES PROPOSED PLANT SPECIES AND HABITAT FUNCTIONS

## EMERGENT ZONE BENCH (+9.5 TO +11.0)

SPECIES	
RED TIGER TAIL	( <i>Carex lyngbyei</i> )
REDSTEM BULRUSH	( <i>Scirpus acutus</i> )
REB-SQUARE BULRUSH	( <i>Scirpus americanus</i> )
ACOAST BULRUSH	( <i>Scirpus maritimus</i> )
ASIDE ARROWGRASS	( <i>Triglochin maritima</i> )

- FUNCTION**
- COVER FOR FISH, BIRDS AND SMALL MAMMALS
  - FOOD FOR MANY WILDLIFE SPECIES
  - CONTRIBUTES TERRESTRIAL FOOD FOR FISH
  - CONTRIBUTES DETRITUS TO SUPPORT SYSTEM

## GROUND COVER AND SHRUB ZONE BENCH (+14.0 TO +17.0)

SPECIES	
RED-OSIER DOGWOOD	( <i>Cornus sericea</i> )
SWEET GALE	( <i>Myrica gale</i> )
PACIFIC NINEBARK	( <i>Physocarpus capitatus</i> )
HOOKER'S WILLOW	( <i>Salix hookeriana</i> )
TRANSITIONAL GROUND COVER SPECIES	
DOUGLAS ASTER	( <i>Aster subspicatus</i> )
TUFTED HAIRGRASS	( <i>Deschampsia caespitosa</i> )
SALTGRASS	( <i>Distichlis spicata</i> )
MEADOW BARLEY	( <i>Hordeum brachyantherum</i> )
PACIFIC SILVERWEED	( <i>Potentilla anserina</i> )

- FUNCTION**
- COVER FOR BIRDS AND SMALL MAMMALS
  - FOOD FOR MANY WILDLIFE SPECIES
  - SLOPE STABILIZATION
  - SEDIMENT CONTROL

## RIPARIAN ZONE (+17.0 TO +21.0)

SPECIES	
RED ALDER	( <i>Alnus rubra</i> )
INDIAN PLUM	( <i>Oxmyrtia cerasiform</i> )
BLACK COTTONWOOD	( <i>Populus balsamifera</i> )
PACIFIC WILLOW	( <i>Salix lucida</i> )
SNOWBERRY	( <i>Symphoricarpos albus</i> )

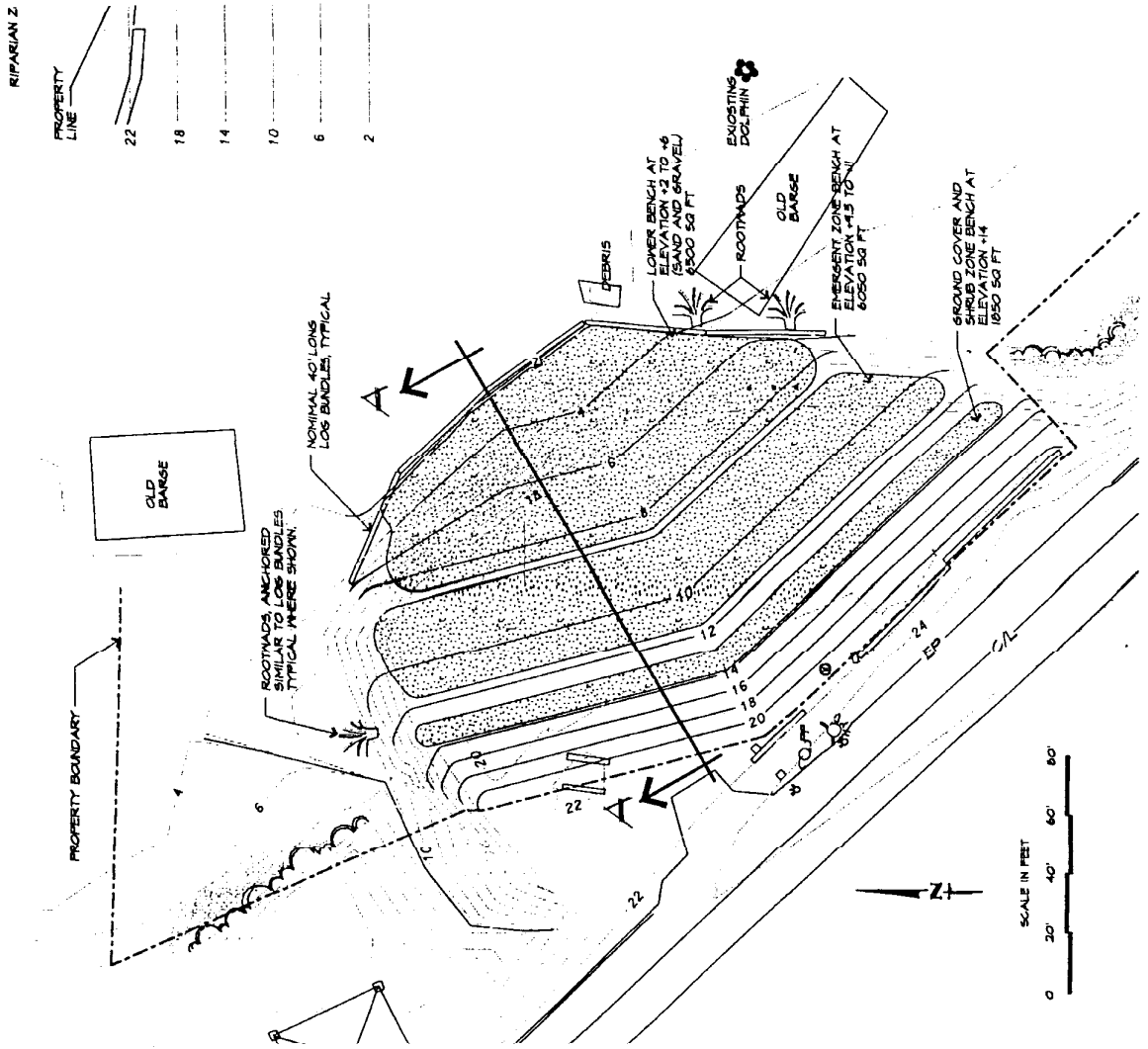
- FUNCTION**
- COVER AND FOOD FOR WILDLIFE
  - SLOPE STABILIZATION AND SEDIMENT CONTROL
  - PROVIDES SHADE AND TERRESTRIAL FOOD
  - CONTRIBUTES WOODY DEBRIS TO SYSTEM





# TURNING BASIN #1

## SITE P





## **Appendix B. Detailed Description of the Green/Duwamish Basin**

The lower ten-mile segment of the Green/Duwamish River (WRIA 09.0001) system from the City of Renton to Elliot Bay by Seattle is known as the Duwamish River. The rest of the river, upstream from the its confluence of the Black River, which is approximately the upper extent of tidal influence, is known as the Green River (Williams *et. al* 1975). Historically, the Duwamish/Green River drained a 1,642 square miles watershed (US Army Corps of Engineers [Corps] 1997). The three main sub-basins, the Black, Green, and White Rivers were separated for navigation and flood control in the early 20th century (Blomberg *et al.* 1988). The White River was diverted by a high water event in 1906 and retained in the new channel. The bulk of the Black River was drained permanently in 1916 with the construction of the Ballard Locks in Lake Washington and the lowering of Lake Washington, with flow now restricted to a small tributary, Springbrook Creek. Currently the Duwamish drains only the Green River basin of 483 square miles. As a result, the present watershed of the Duwamish/Green represents a 93% reduction from historical levels in accessible length for anadromous fish (Blomberg *et al.* 1988).

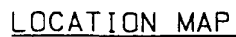
Furthermore, the remnants of this system, the present Green/Duwamish basin have been greatly modified from its pre-development ability to create and maintain salmon habitat. The City of Tacoma built a water diversion dam at RM 61 in 1913. The US Army Corps of Engineers Howard Hanson Dam was constructed at RM 64.0 in 1961. Neither dam was built with fish passage facilities, eliminating access to an estimated 107 miles of historic anadromous fish habitat (Corps 1998) as well as dramatically altering the quantity and quality of downstream salmon habitat. The lower floodplain, below RM 37.3, historically consisted of rapidly shifting meanders, but now this area is almost completely contained within levees or revetments, resulting in the lack of riparian cover, large woody debris, off-channel rearing areas, and reduced channel storage capacity (Corps 1997; Fuerstenberg *et al.* 1996). Flood control operations at the HHD have encouraged further urban and commercial development in the floodplain (Corps 1997, 1998; Fuerstenberg *et al.* 1996), which have reduced the extent of the riparian corridor, filled side channels and degraded water quality and quantity. The lower 10 miles of the river, the reach in which the project is located has been almost completely altered from its pre-development condition (Blomberg *et al.* 1988). The Duwamish estuary once contained nearly 5,300 acres of intertidal mudflats, marshes and riparian habitats (Blomberg *et al.* 1988). Today, only 2% of these areas exist in the Duwamish River (Blomberg *et al.* 1988). Since settlement, there has been a 98% loss of shallows, intertidal mudflats and tidal marshes in Green/Duwamish estuary and a 100 percent loss of tidal swamps (Blomberg *et al.* 1988). As a result, Blomberg *et al.* (1988) estimated that there are only 45 acres of intertidal mudflat and tidal marsh left in the Duwamish Estuary. Of the 22.6 miles of total shoreline length between the mouth and River Mile 6.5, (an area 1.3 mile distance upstream from the project site), 44% is rip rapped, 34% covered by pier aprons and 7% covered by sheet piling, leaving approximately 15% in lesser forms of disturbance (derived from data in Tanner 1991). Furthermore, a considerable portion of the remaining intertidal and shallow subtidal portions of the Green/Duwamish estuary is covered by barges (Muckleshoot Indian Tribe Fisheries Department [MITFD], unpub. data).

The result of these alterations is that 1) both the extent and quality of habitat has declined greatly and 2) the natural processes that contribute to the formation and maintenance of salmon habitat in the Green/Duwamish River severely diminished. The diminishment of these



natural processes have significantly reduced the to form salmon habitat in both the freshwater and estuarine reaches of the river (Corps 1997). Given the dramatic reduction in sediment inputs and channel confinement (Corps 1997), it is unlikely that natural processes will create additional habitat in the Duwamish estuary.





COMMENCING AT A POINT ON THE BUCKLEY DONATION CLAIM MEANDER LINE, ACCORDING TO SURVEY OF TOWNSHIP 23 NORTH, RANGE 4 EAST, W.M., IN KING COUNTY, WASHINGTON, ON FILE WITH THE US DEPT. OF INTERIOR GENERAL LAND OFFICE, SPOKANE, WASHINGTON. APPROVED MARCH 31, 1863, WHERE SAID POINT IS INTERSECTED BY AN EXTENSION OF THE SOUTHERLY BOUNDARY LINE OF TRACT 55, MOORE'S FIVE ACRE TRACTS, ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 9 OF PLATS, PAGE 28, RECORDS OF KING COUNTY WASHINGTON, AS THE TRUE POINT OF BEGINNING.

THENCE WESTERLY ALONG SAID LINE SO EXTENDED TO THE POINT OF INTERSECTION THEREOF WITH THE EASTERLY MARGINAL LINE OF THE RIGHT-OF-WAY ACQUIRED BY THE CITY OF SEATTLE DEPARTMENT OF LIGHTING, CY CLARK, NO. 18955, RECORDS OF SUPERIOR COURT OF THE STATE OF WASHINGTON FOR KING COUNTY; THENCE NORTHERLY ALONG SAID EASTERLY MARGINAL LINE OF SAID RIGHT-OF-WAY TO A POINT OF INTERSECTION WITH THE NORTHERLY BOUNDARY LINE OF TRACT 55 TO THE SAID BUCKLEY DONATION CLAIM MEANDER LINE;

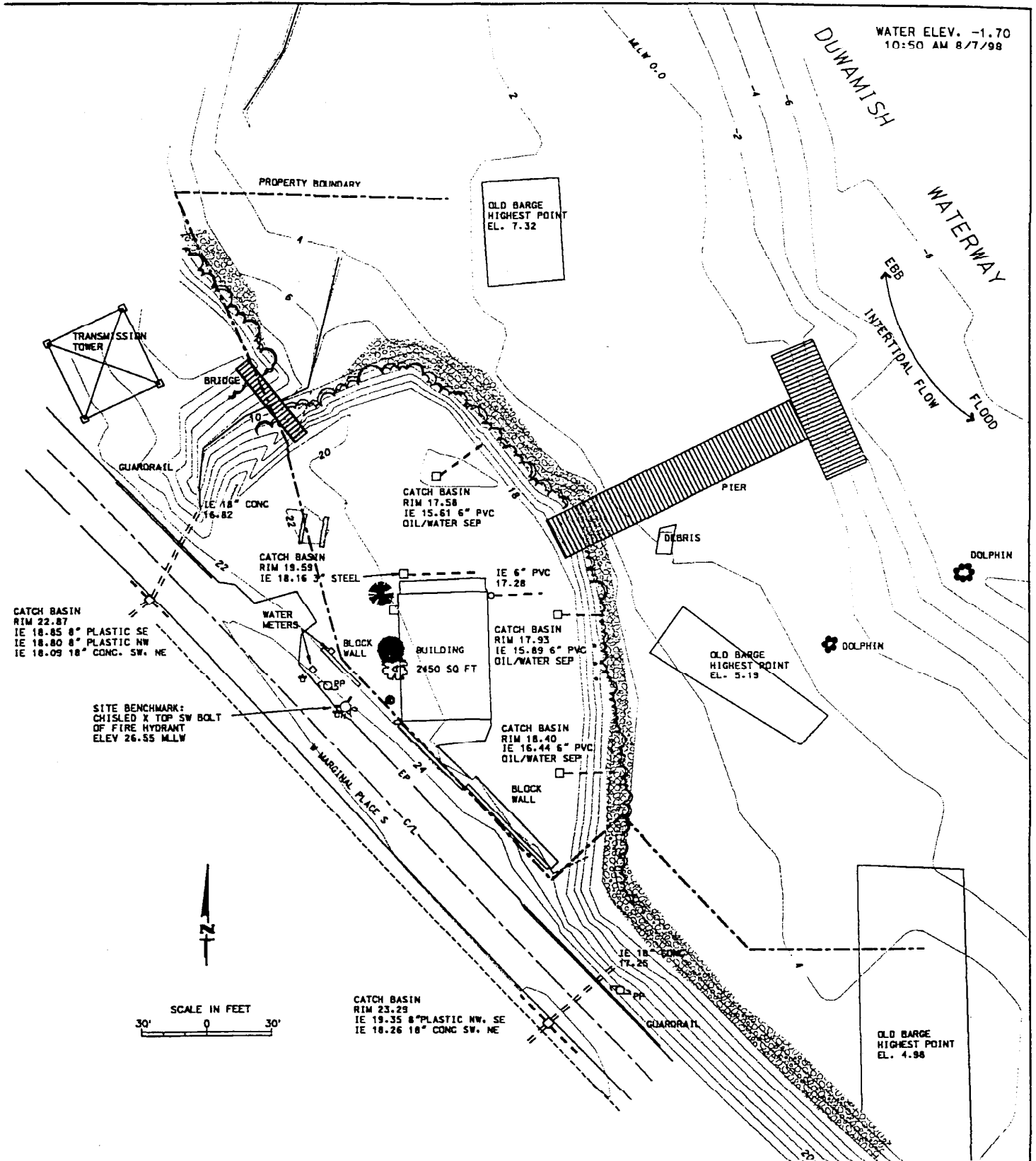
THENCE SOUTHERLY ALONG SAID BUCKLEY DONATION CLAIM MEANDER LINE TO THE TRUE POINT OF BEGINNING.

TOGETHER WITH THAT PORTION OF VACATED FRAEGER ROAD ADJOINING WHICH, UPON VACATION, ATTACHED TO SAID PROPERTY BY OPERATION OF LAW;

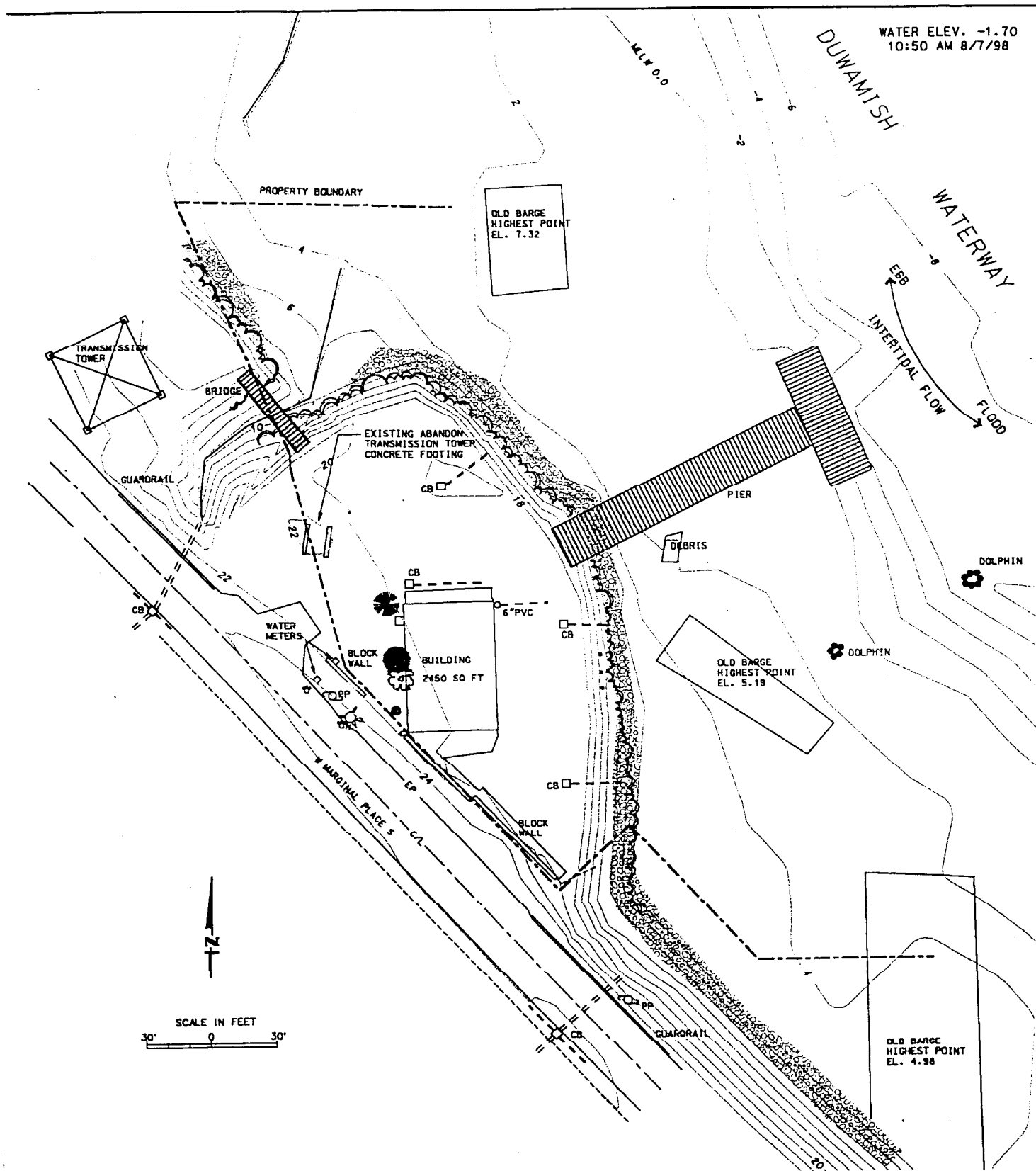
TOGETHER WITH ALL LAND LYING TO THE EASTERLY OF SAID BUCKLEY DONATION CLAIM MEANDER LINE BETWEEN AN EASTERLY EXTENSION OF THE NORTHERLY AND SOUTHERLY LINES OF SAID TRACT 55 AND BETWEEN THE EASTERLY LINE OF SAID BUCKLEY DONATION CLAIM, AND THE HIGH WATER LINE OF THE WESTERLY BANK OF THE DUWAMISH RIVER. EXCEPT THAT PORTION CONDEMNED IN KING COUNTY SUPERIOR COURT CAUSE NO. 547035 FOR STATE HIGHWAY NO. 1.

SITUATED IN THE COUNTY OF KING, STATE OF WASHINGTON.

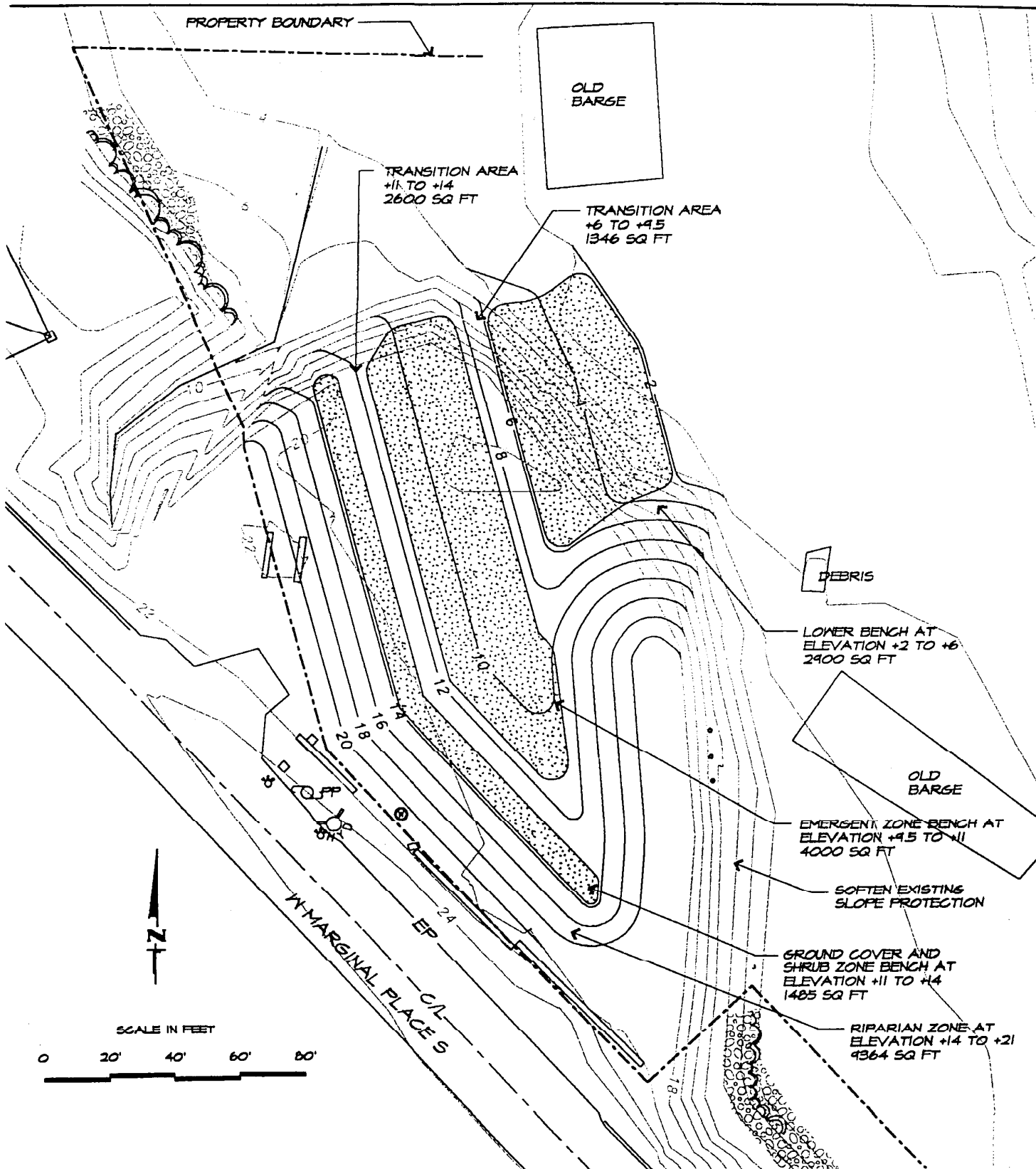




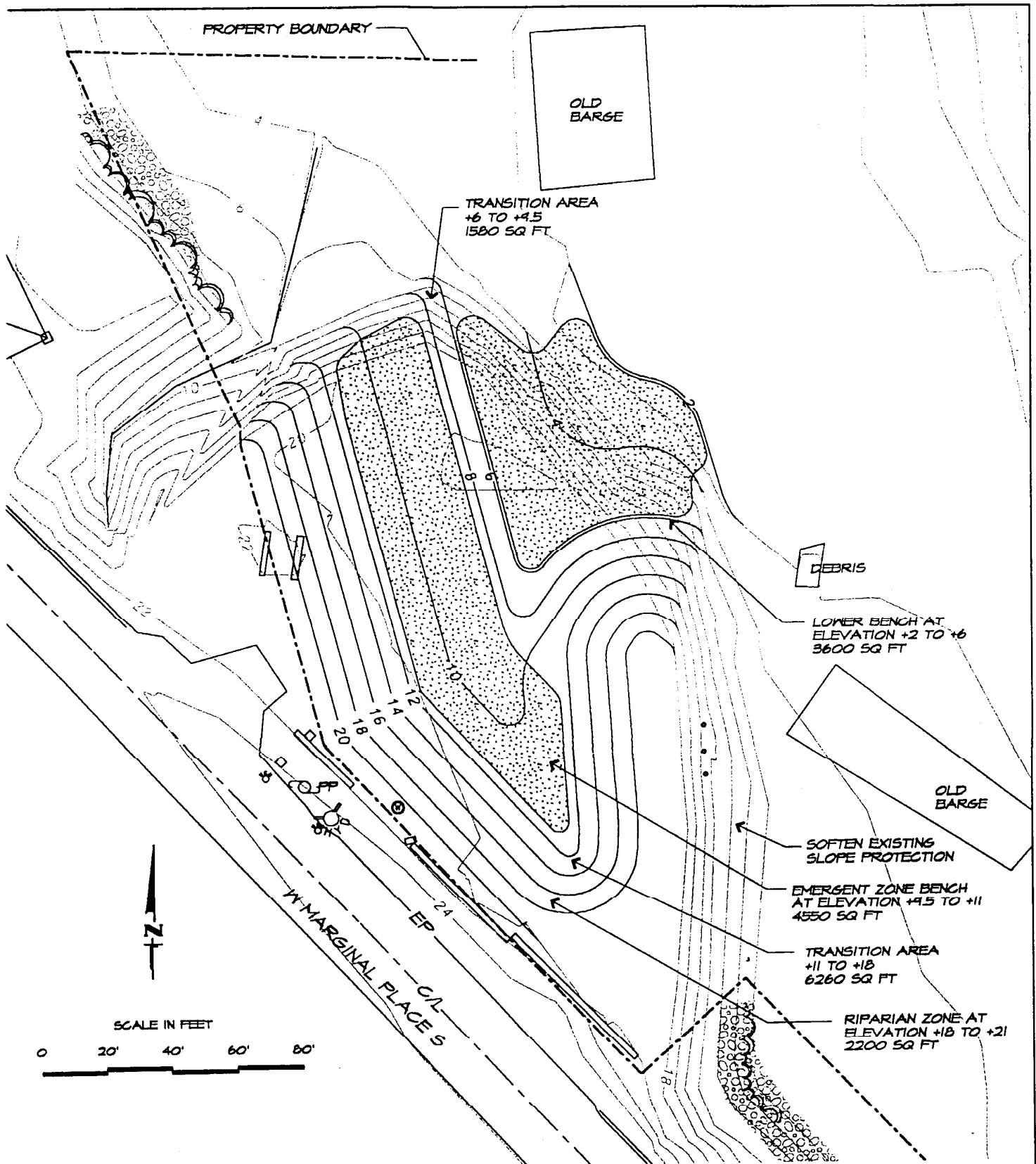




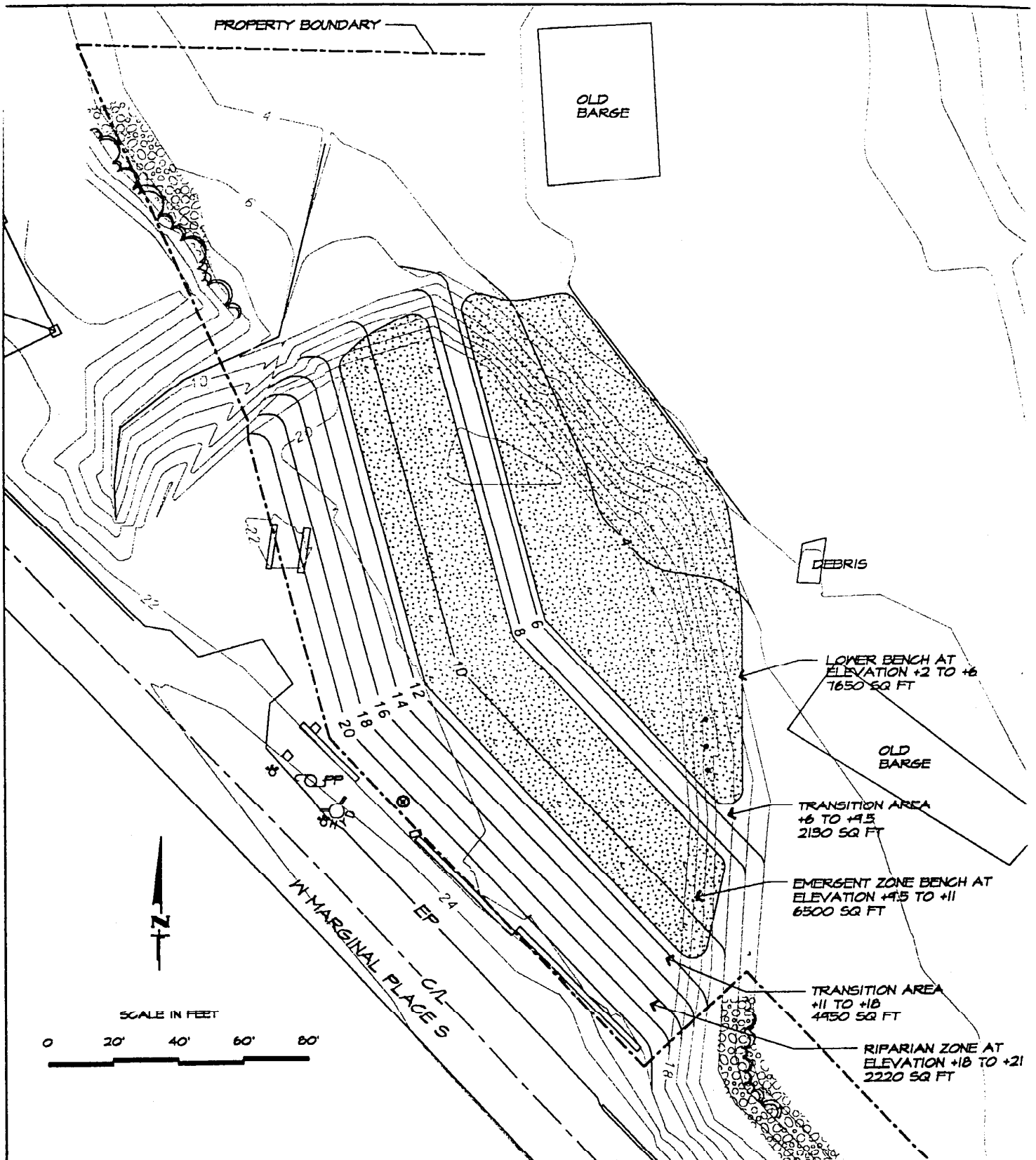














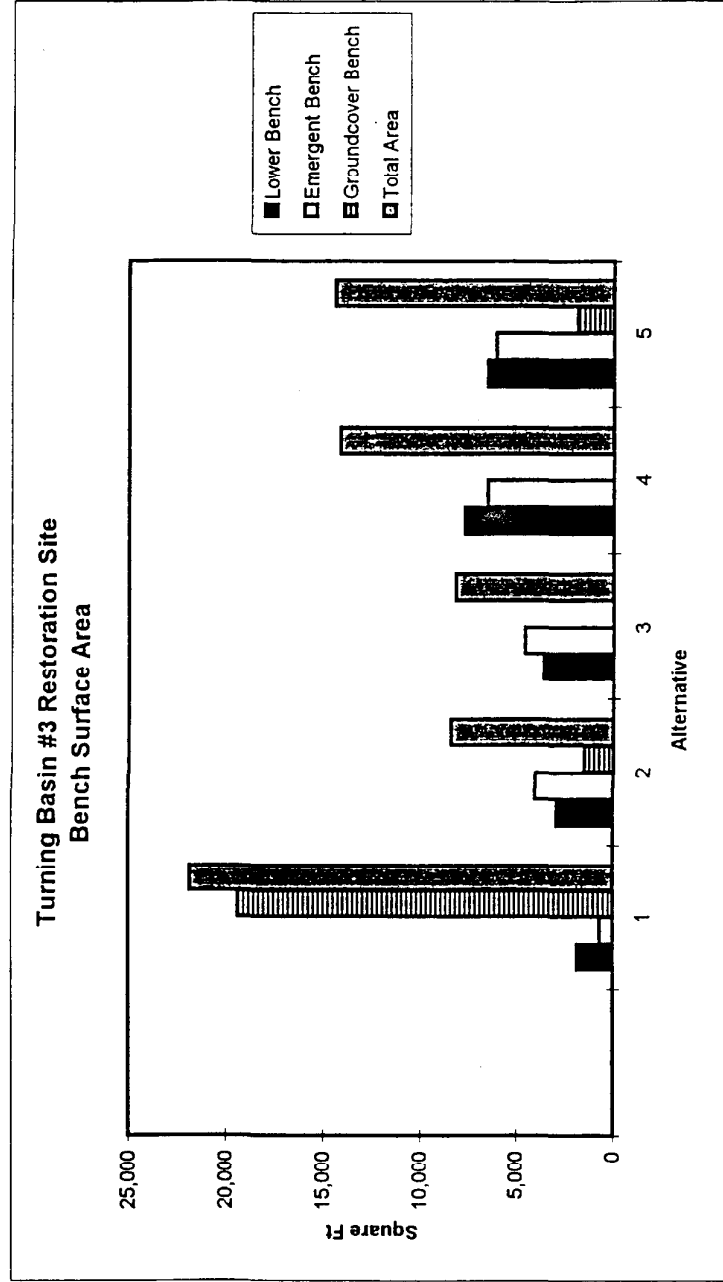
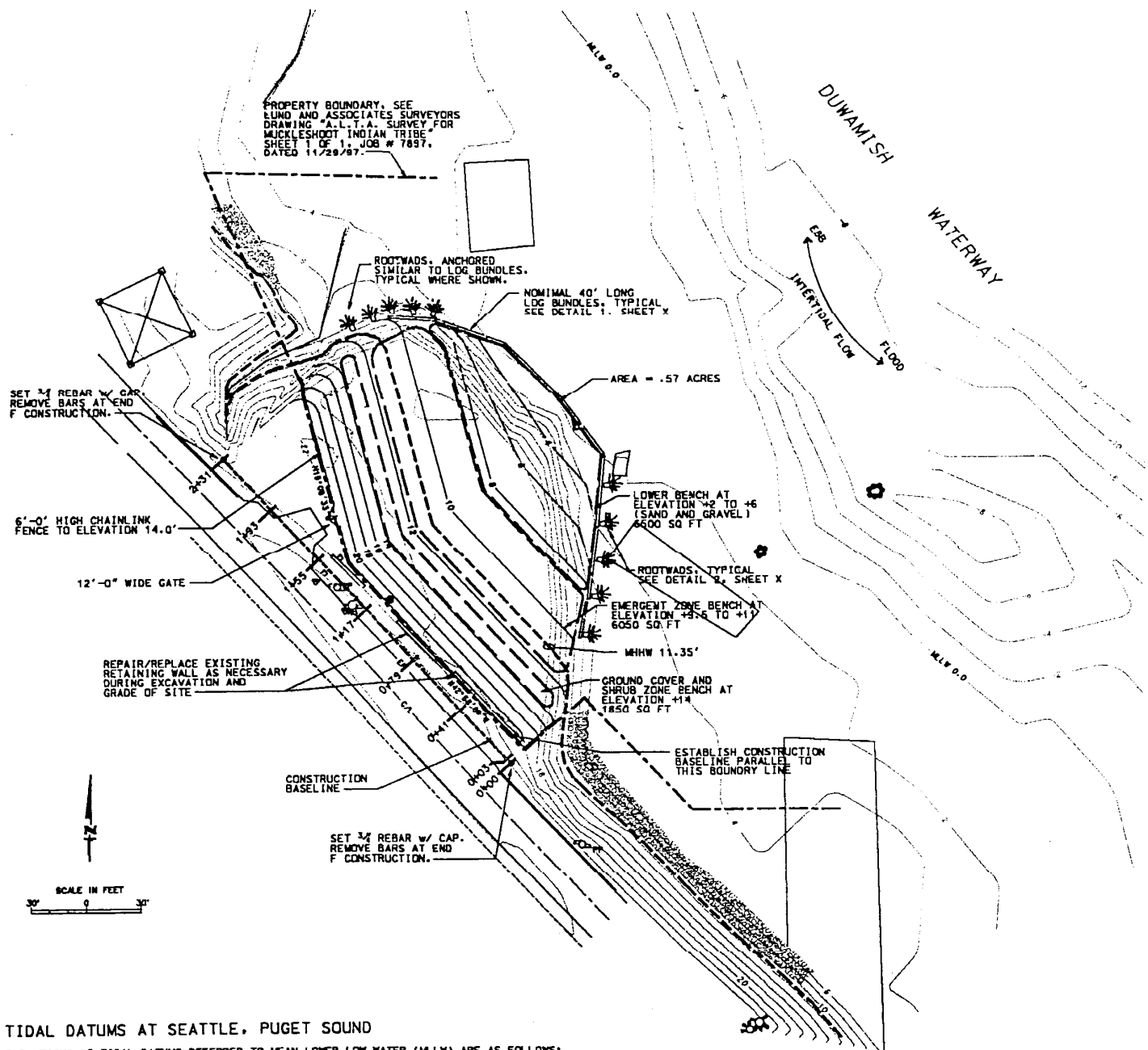


Figure 7. Turning Basin #3 individual and total habitat bench surface area by Alternative.



[illegible]





#### TIDAL DATUMS AT SEATTLE, PUGET SOUND

ELEVATIONS OF TIDAL DATUMS REFERRED TO MEAN LOWER LOW WATER (MLLW) ARE AS FOLLOWS:

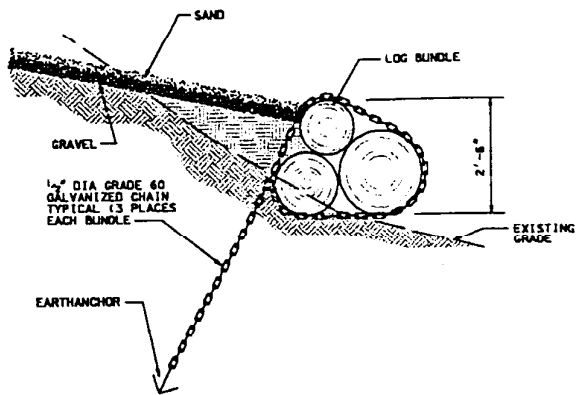
HIGHEST OBSERVED WATER LEVEL (01/27/1983)	=	14.65 FEET
MEAN HIGHER HIGH WATER (MHHW)	=	11.35 FEET
MEAN HIGH WATER (MHW)	=	10.49 FEET
MEAN TIDE LEVEL (MTL)	=	8.66 FEET
MEAN SEA LEVEL (MSL)	=	8.66 FEET
MEAN LOW WATER (MLW)	=	2.51 FEET
NORTH AMERICAN VERTICAL DATUM-1988 (NAVD)*	=	0.00 FEET
MEAN LOWER LOW WATER (MLLW)	=	-4.87 FEET
LOWEST OBSERVED WATER LEVEL (06/20/1951)	=	-4.87 FEET

\* NAVD IS BASED ON ELEVATIONS PUBLISHED IN 1995, AND NOS LEVELING OF 1994.

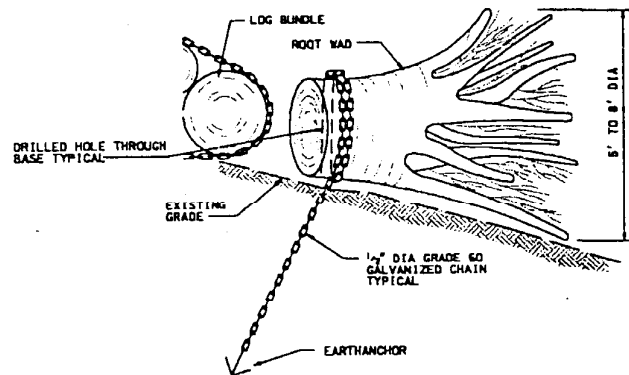
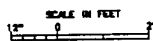


FIGURE 9. RESTORATION PLAN

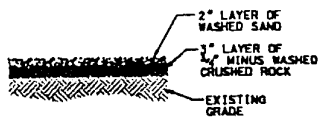
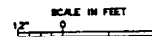




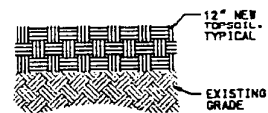
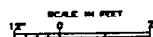
DETAIL 1 TYPICAL LOG BUNDLE



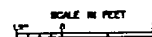
DETAIL 2 TYPICAL ROOT WAD



DETAIL 3



DETAIL 4





TURNING BASIN #3 MATERIAL QUANTITIES (AVG END METHOD)

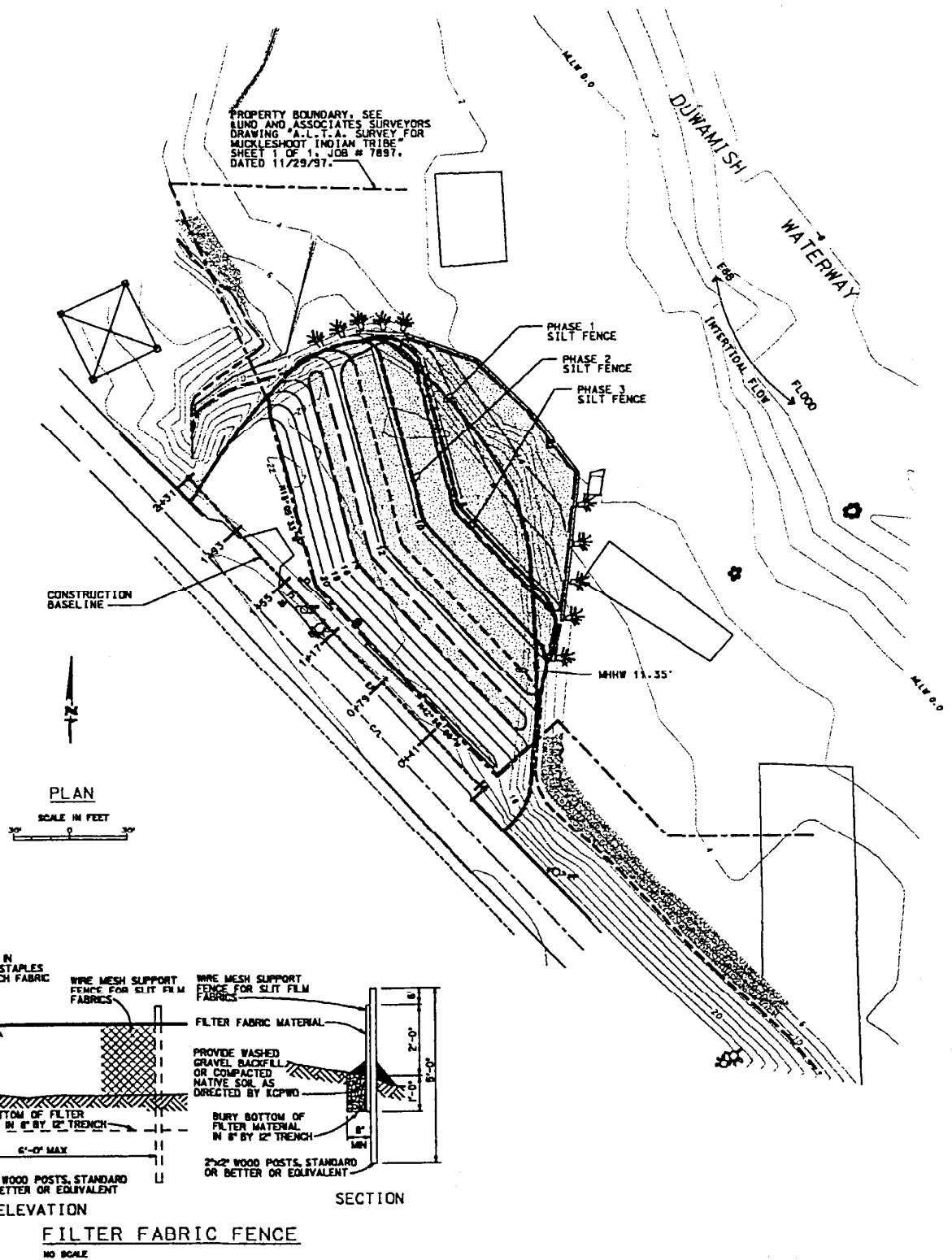
ITEM	AREA ABOVE MHHW	AREA BELOW MHHW	CU YD ABOVE MHHW	CU YD BELOW MHHW
STATION 0+03 EXCAVATION TOPSOIL MIX	45.1 28.2			
STATION 0+41 EXCAVATION TOPSOIL MIX	336.9 34.8	85.9 45.7	268.81 44.33	
STATION 0+79 EXCAVATION TOPSOIL MIX GRAVEL SAND	577.9 37.1	233.6 40.1 14.46 9.64	643.75 50.60	224.83 60.38
STATION 1+17 EXCAVATION TOPSOIL MIX GRAVEL SAND	769.7 40.1	404.1 42.9 18.96 12.64	948.31 54.33	448.75 58.41
STATION 1+55 EXCAVATION TOPSOIL MIX GRAVEL SAND	704.4 44.0	430.8 48.6 13.98 9.32	1037.33 59.18	587.52 64.39
STATION 1+93 EXCAVATION TOPSOIL MIX GRAVEL SAND	584.4 47.1	157.8 55.3 2.46 1.64	906.93 64.11	414.20 73.11
STATION 2+31 EXCAVATION TOPSOIL MIX	108.39 35.9	10.6 9.3	487.52 58.41	118.50 45.46

PROJECT	TOTAL	ITEM-UNIT	TOTALS ABOVE MHHW	TOTALS BELOW MHHW
6086.45	CY	EXCAVATION-CY	4292.65	1793.80
587.24	CY	TOPSOIL MIX-CY	330.95	256.29
58.27	CY	GRAVEL-CY		58.27
38.84	CY	SAND-CY		38.84

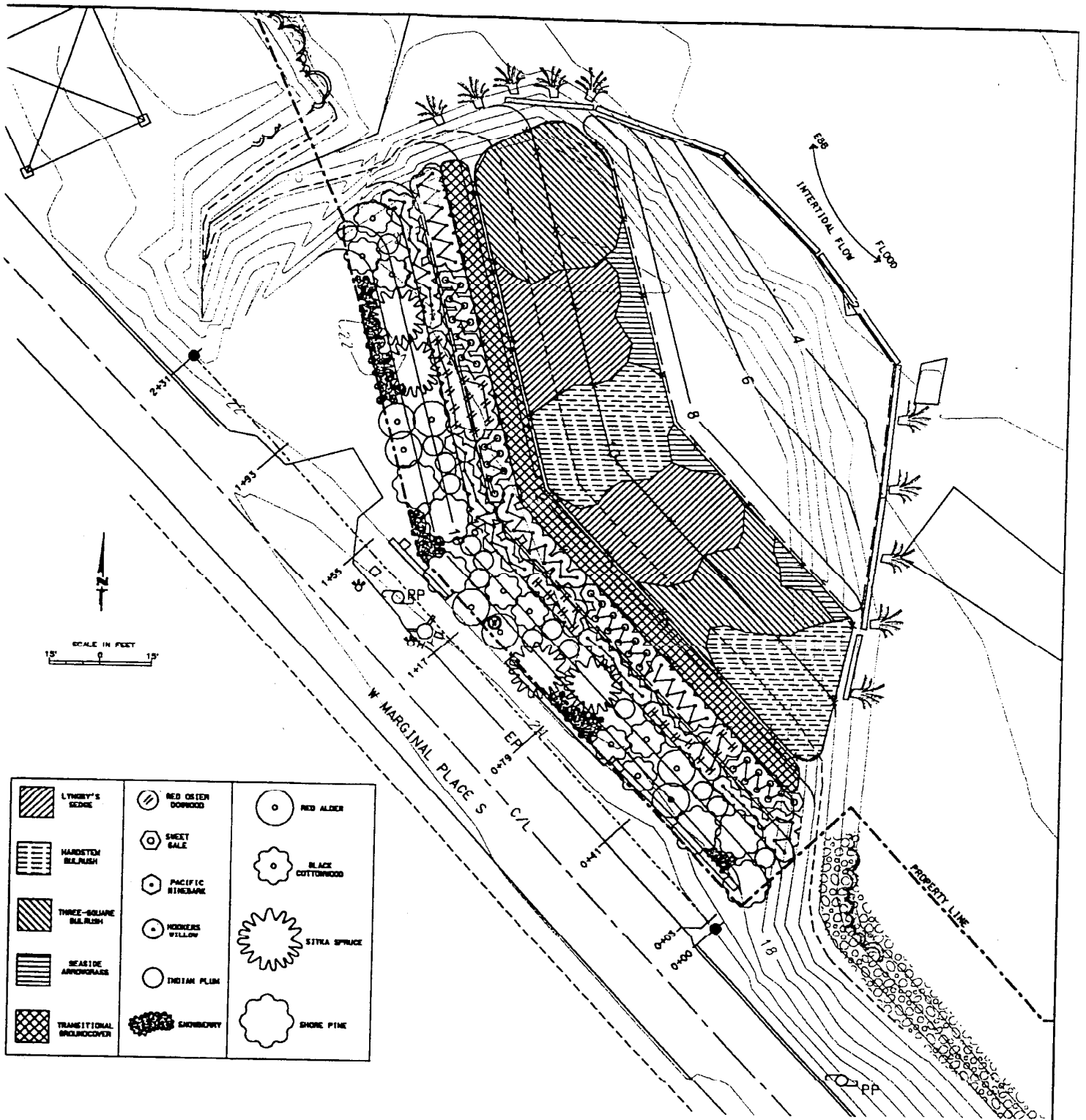


FIGURE 11. MATERIAL QUANTITIES











# GENERAL PLANTING NOTES

- CONTRACTOR SHALL NOTIFY PROJECT ENGINEER OF ANY DISCREPANCIES BETWEEN ACTUAL SITE CONDITIONS AND DRAWINGS AND SPECIFICATIONS.
- PLANTING SHALL TAKE PLACE AS EARLY AS POSSIBLE DURING THE GROWING SEASON IN ORDER TO ENSURE GOOD ROOT DEVELOPMENT PRIOR TO DORMANCY AND SHALL NOT OCCUR AFTER JULY 15TH.
- SUBGRADE SHALL BE NOTIFIED TO A DEPTH OF 6 INCHES PRIOR TO APPLICATION OF SPECIFIED TOPSOIL. TOPSOIL SHALL THEN BE INCORPORATED INTO THE UPPER PART OF THE SUBGRADE.
- ALL PLANTS SHALL BE HEALTHY AND FREE FROM ABNORMAL DISEASE, DEFECTS AND INFESTATION AND SHALL HAVE GOOD ROOT DEVELOPMENT WITHOUT BEING EXCESSIVELY ROOTBOUND.
- ALL PLANTS SHALL BE GROWN IN WASHINGTON FROM PUEBT SOUND LOWLAND NATIVE PLANT STOCK AND SHALL BE TYPICAL OF THEIR SPECIES.
- ONLY NATIVE SPECIES INDIGENOUS TO THE PROJECT AREA MAY BE INSTALLED IN RESTORATION AREA. PLANT SUBSTITUTIONS AND ANY MAJOR CHANGE TO THE RESTORATION PLAN MUST BE PRE-APPROVED.
- TREES SHALL BE A MINIMUM 36-INCHES TALL. SHRUBS SHALL BE A MINIMUM 24-INCHES TALL. HERBACEOUS PLANTS SHALL HAVE A HEIGHT PROPORTIONAL TO CONTAINER OR ROOTSTOCK SIZE.
- PLANT MATERIAL LAYOUT SHALL BE COMPLETED BY THE CONTRACTOR AND APPROVED BY THE PROJECT ENGINEER PRIOR TO INSTALLATION OF PLANTS. PLANT MATERIAL MAY NOT BE INSTALLED PRIOR TO VERIFICATION AND APPROVAL OF PLANT CONDITION BY THE PROJECT ENGINEER. THE PROJECT ENGINEER RESERVES THE RIGHT TO REQUIRE REPLACEMENT OR SUBSTITUTION OF PLANTS THAT ARE DEEMED UNSUITABLE BASED ON THE PLANT SCHEDULE OR PLANT CHARACTERISTICS. ANY PLANT MATERIAL WITH INVASIVE PLANTS ATTACHED SHALL BE REJECTED.
- THE CONTRACTOR SHALL OIL, PACK, TRANSPORT AND HANDLE PLANTS WITH CARE TO ENSURE PROTECTION FROM DAMAGE. ALL PLANTS SHALL BE STORED IN A MANNER NECESSARY TO ACCOMMODATE THEIR HORTICULTURAL NEEDS. PLANTS SHALL BE KEPT SATURATED, SHADDED AND PROTECTED FROM WINDSUN UNTIL THE ACTUAL TIME OF INSTALLATION.
- ALL PLANTING WITHIN THE RESTORATION AREAS SHALL BE DONE BY HAND WITH AS LITTLE DISTURBANCE AS POSSIBLE. NO MECHANICAL EQUIPMENT SHALL BE ALLOWED IN THE RESTORATION AREA INCORPORATION OF TOPSOIL.
- PLANTS SHALL BE PLANTED WITH THE CROWN AT OR SLIGHTLY ABOVE THE GRADE LEVEL AT WHICH THEY WERE GROWN. PLUGS SHALL HAVE MINIMUM OF 3 TO 5 CLUMPS OR SPIRES PER HOLE, AND SHALL BE PLANTED NO MORE THAN 3 INCHES DEEP.
- PLANTING HOLE SHALL BE OF SUFFICIENT SIZE TO ACCOMMODATE FULL ROOT SPREAD. PLANTING STOCK IS TO BE PLACED INTO THE OPENING TAKING CARE TO AVOID FORMING A CLUMP (ON J) IN THE ROOT SYSTEM.
- AGRICULTURAL OR EQUIVALENT SLOW RELEASE FERTILIZER MAY BE ADDED TO PLANTING HOLES AT THE RATE OF 0.5 OUNCES (15G) PER PLANT OR ACCORDING TO MANUFACTURER'S INSTRUCTIONS. CARE SHALL BE TAKEN TO ENSURE FERTILIZER DOES NOT TOUCH THE ROOTS.
- ALL PLANTS SHOULD BE THOROUGHLY WATERED WITHIN 4 HOURS OF PLANTING. BARE-ROOT MATERIAL SHALL BE WATERED IMMEDIATELY AFTER PLANTING TO AVOID CAPILLARY STRESS. THE CONTRACTOR WILL BE RESPONSIBLE FOR WATERING NEWLY INSTALLED PLANT MATERIAL TO ENSURE SURVIVABILITY.
- ANY TREES WHICH ARE STAKED SHALL BE STAKED AT THE LOWEST HEIGHT THAT WILL KEEP THEM UPRIGHT. ALL STAKES AND TIES SHALL BE BIODEGRADABLE, AND SHALL BE REMOVED BY THE END OF THE SECOND GROWING SEASON.
- ALL AREAS WITHIN THE SHRUB AND RIPARIAN PLANTING ZONES LEFT BARE AFTER PLANT INSTALLATION SHALL BE SEEDING WITH SEEDS OF THE COMPOSITION, PROPORTION AND QUALITY NOTED IN THE PLANT SCHEDULE AT THE RATE OF 100 POUNDS PER ACRE.
- PERIMETER WATERFOWL EXCLUSION FENCING SHALL BE INSTALLED AS SPECIFIED ON THE PLAN, DETAILS AND NOTES. FENCING SHALL BE CONSTRUCTED USING 2" MESH (MAX.) AND SHALL BE A MINIMUM 3-FEET HIGH. POLYPROPYLENE LINE OR NYLON TAPE SHALL BE USED TO CREATE A HIGHLY VISIBLE ADJACENT GRID WITH 3-FEET SPACING (MAX.) BETWEEN CROSS TIES.
- ALL PLANTS SHALL BE WATERED BY THE CONTRACTOR AS NEEDED TO KEEP THEM HEALTHY AND GROWING THROUGHOUT THE FIRST GROWING SEASON.
- CONTRACTOR SHALL WARRANT ALL PLANTED MATERIAL TO REMAIN ALIVE AND HEALTHY FOR A PERIOD OF ONE YEAR AFTER COMPLETION AND FINAL ACCEPTANCE OF PLANTING. THE CONTRACTOR SHALL REPLACE DEAD OR UNHEALTHY PLANTS PER PLANS AND SPECIFICATIONS AS DIRECTED BY THE PROJECT ENGINEER.
- A WARRANTY INSPECTION SHALL BE SCHEDULED ONE YEAR FROM ACCEPTANCE OF RESTORATION INSTALLATION. THE CONTRACTOR SHALL NOTIFY OWNER IN WRITING TWO WEEKS PRIOR TO THE ONE YEAR WARRANTY INSPECTION DATE.

## PLANT SCHEDULE - Emergent Zone Bench (+9.5' to +11.0' Tidal Elevation)

Common Name	Scientific Name	Min. Size	Spacing	Quantity
Lyngby's sedge	<i>Carex lyngbyi</i>	plug (3 stem min)	2' OC	585 *
Hardstem bulrush	<i>Scirpus americanus</i>	plug (1 gal pot)	2' OC	585 *
Three-square bulrush	<i>Scirpus americanus</i>	plug	2' OC	585 *
Seaside arrowgrass	<i>Triglochin arifolius</i>	plug (4" pot)	3' OC	166 **

\* Plant in monotypic stands as specified on plan

\*\* Plant in groups of 5 to 5 randomly distributed along outer perimeter of emergent bench

## PLANT SCHEDULE - Transitional Groundcover Zone (+11.0' to +13.8' Tidal Elevation)

Common Name	Scientific Name	Min. Size	Spacing	Quantity
Douglas aster	<i>Aster subspicatus</i>	4" pot	2' OC	125 *
Tufted hairgrass	<i>Deschampsia cespitosa</i>	plug	2' OC	125 *
Saltgrass	<i>Bouteloua curtipendula</i>	plug	2' OC	125 *
Meadow barley	<i>Hordeum brachyarrhenum</i>	plug	2' OC	125 *
Pacific arrowgrass	<i>Triglochin arifolius</i>	4" pot	2' OC	125 *

\* Plant in approximately equal numbers, randomly distributed in groups of 5 or more

## PLANT SCHEDULE - Shrub Zone Bench (+13.8' to +17.0' Tidal Elevation)

Common Name	Scientific Name	Min. Size	Spacing	Quantity
Red-elder dogwood	<i>Cornus sericea</i>	24"	6' OC	32
Sweet gale	<i>Myrica gale</i>	24"	6' OC	36
Pacific ninebark	<i>Physocarpus opulifolius</i>	24"	6' OC	46
Hudson's willow	<i>Salix hudsoniana</i>	24"	6' OC	31

## PLANT SCHEDULE - Riparian Zone Bench (+17.0' to +21.0' Tidal Elevation)

Common Name	Scientific Name	Min. Size	Spacing	Quantity
Red alder	<i>Alnus rubra</i>	36"	12' OC	7
Black cottonwood	<i>Populus balsamifera</i>	36"	12' OC	8
Sitka spruce	<i>Picea sitchensis</i>	36"	16' OC	4
Shore pine	<i>Pinus contorta contorta</i>	36"	16' OC	8
Indian plum	<i>Omalotheca caryocarpata</i>	24"	6' OC	15
Snowberry	<i>Symphoricarpos albus</i>	24"	3' OC	95 *

\* Plant 3' OC in hedge like stands, as specified on plan

## PLANT SCHEDULE - Native Seed Mixture\*

Common Name	Scientific Name	% by Weight	Min % Pure Seed	Min % Germination
Slender wheatgrass	<i>Elymus trachycephalus</i>	30	28	95
Meadow foxtail	<i>Alopecurus pratensis</i>	20	18	80
Native red fescue	<i>Festuca rubra</i>	10	9	80
Meadow barley	<i>Hordeum brachyarrhenum</i>	10	9	94
Reynolds' starwilt	<i>Stachys recta</i>	30	28	
Wheat seed			1 seed	
Inert and other crop			7 seed	
TOTAL			100	

\* Application within Shrub and Riparian Zones as specified in general planting notes

